BRITISH COLUMBIA SEABIRD COLONY INVENTORY: REPORT #3 – CENSUS OF GLAUCOUS-WINGED GULLS, PELAGIC CORMORANTS, BLACK OYSTERCATCHERS AND PIGEON GUILLEMOTS IN THE QUEEN CHARLOTTE ISLANDS, 1986

Michael S. Rodway

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ABSTRACT

Nesting sites of Glaucous-winged Gulls (Larus glaucescens), Pelagic Cormorants (Phalacrocorax pelagicus) and Black Oystercatchers (Haematopus bachmani) in the Queen Charlotte Islands were censused between 7 May and 11 July 1986. Nesting populations were compared to 1977 figures. Populations of Glaucous-winged Gulls and Black Oystercatchers were larger in 1986 than in 1977, but Pelagic Cormorant numbers had declined. Counts of Pigeon Guillemots (Cepphus columba) in attendance around gull colonies were made.

RÉSUMÉ

Une recensement des sites de nidification des Goélands à ailes grises (Larus glaucescens), des Cormorans pélagiques (Phalacrocorax pelagicus) et des Huîtriers noir (Haematopus bachmani) dans les Îles de la Reine-Charlotte a été fait entre le 7 mai et le 11 juillet 1986. Les chiffres des populations en nidification ont été comparés avec ceux de 1977. Les populations de Goélands à ailes grises et d'huîtriers de Bachman étaient plus importantes en 1986 qu'en 1977, mais le nombre de cormorans pélagiques avait diminué. On a également compté les Guillemots du Pacifiques (Cepphus columba) qui se trouvaient autour des colonies de goelands.

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INTRODUCTION AND METHODS

Seabird populations in the Queen Charlotte Islands were surveyed in 1977 by the Royal British Columbia Museum (RBCM). All islands were explored and total nest counts for surface-nesting species: Pelagic Cormorant (Phalacrocorax pelagicus), Black Oystercatcher (Haematopus bachmani) and Glaucous-winged Gull (Larus glaucescens) gave accurate population estimates.

In 1986 the Canadian Wildlife Service (CWS) repeated the census. Our census was a total count for Glaucous-winged Gulls in all areas of the Queen Charlotte Islands except two. We did not survey the section of the west coast of Moresby Island from Lower Victoria Lake to Englefield Bay (The RBCM documented three GWGU colonies, totaling 61 pairs, in that area in 1977), nor the inside of Carpenter Bay on the east coast of Moresby Island (the RBCM found one small, unsuccessful colony of 5 pairs on Samuel Rock in 1977). We attempted to survey all known Pelagic Cormorant nesting sites, but stormy weather prohibited access to some colonies (see species summary). Our count for Black Oystercatchers is complete for Skidegate Inlet, Masset and Juskatla Inlets, and the North Coast of Graham Island, but for the other areas is complete only for locations where gulls were nesting and for other rocky or grassy islets. We did not explore the coastlines of larger forested islands unless we sighted gulls in the area. Previous CWS surveys have estimated nesting populations of Black Oystercatchers on those larger islands (Rodway et al 1983, Rodway and Lemon 1988a&b and Rodway and Lemon in prep). I have included counts from those surveys to obtain a current total estimate for Black Oystercatchers, as well as for Pigeon Guillemots (Cepphus columba). Only total numbers of Pigeon Guillemots sighted around colonies are quoted. No attempt has been made to estimate actual nesting populations, as the numbers in attendance around a colony varies with the time of day and season (Drent 1965), and comparisons are not meaningful without standardized

observation techniques.

All gull and oystercatcher nests were counted, including empty nests, unless they were inaccessible, due to topography or weather which prohibited landing. If nest counts could not be made, nesting populations were estimated to be half the number of breeding birds that were visible on territories. For cormorants, nests were counted from the water, except on Langara Island, Tian Islets and Kunghit Island, where we were able to count all nests from land.

Each island surveyed is listed in geographic sequence. The location maps and the numbering sequence of the colonies are from Rodway et al. in prep. Following each island code, name, and NTS map grid location, is a list of: the specific area surveyed (for large islands only); observers; date and time of survey; weather; and comments about survey methods. Only detailed information on the four species dealt with in this report is presented. Complete island accounts for other nesting seabird species are found in Rodway et al. 1983, Rodway and Lemon 1988a&b, and Rodway and Lemon in prep.

Species names are abbreviated according to the codes listed in Campbell and Harcombe 1985.

Tables listing nest contents use the following codes:

T-NEST - Total number of nests.
STA - Nest starts.
EMP - Empty nests (nest building complete).
E - Egg.
Y - Young.
T-E - Total eggs.
T-Y - Total young.
ADU - Adults.

Following the island accounts I summarize the results on a species basis and compare total population estimates with those from 1977.

ACKNOWLEDGEMENTS

The survey was made possible by the following people who accompanied me in the field, and most of whom volunteered their time:

West Coast Graham Island: C. Rodway, J. Rodway.

West Coast Moresby Island: D. Garnier, D. Grinnell, M. Lemon.

East Coast Moresby Island: M. Lemon, D. Garnier, D. Grinnell, D. Powell, H. Hay, N. Holmes, G. Kaiser.

Skidegate Inlet: K. Moore, M. Morris, D. Davies.

Masset and Juskatla Inlets: C. Rodway, J. Rodway.

North Coast Graham Island: C. Rodway, J. Rodway.

I thank them all for sharing the enthusiasm. Special thanks to Keith Moore who organized the Skidegate Inlet survey.

The survey was part of the CWS seabird colony inventory project supervised by G. Kaiser. Many thanks to M. Lemon for drafting the maps and carefully reviewing and correcting errors in the manuscript.

SURVEY RESULTS - ISLAND ACCOUNTS

WEST COAST GRAHAM ISLAND (Fig. 1)

WG-010 Langara Island 103 K/3

Only the gull and cormorant colony at Langara Point was surveyed.
M., C. & J. Rodway
01/07/86 14:30-17:34
Sunny
We boated along the west side of the island on 29/06/86 at 17:40.

Nesting species:

PECO: All but two nests were located in the crevice directly below (north of) the light. They are tallied for the east and west sides of the crevice. The two separate nests were located on the SW corner of the main gull rocks directly below (west of) the light.

	Unknown	Empty	2E	3E	4E	5E	4Y	Total
E side	2	19		1		1		23
W side	2	16	2	1	5	1		27
SW corner				1			1	2
TOTAL	4	35	2	3	5	2	1	52

BLOY: 1 nest with 2 eggs on rock east of PECO crevice. Nest made of rock chips. 2 adults.

GWGU: Nests were located on the rock below (west of) the light, and continued around on the east side of the PECO crevice to the next crevice to the east (PEFA crevice). Nests are tallied separately for the west and east sides of the PECO crevice.

	Start	Empty	1E	2E	3E	1E2Y	2Y	3Y	Total
West	1	4	1	6	19		1	1	33
East	2	5		3	20	1	5	2	38
TOTAL	3	9	1	9	39	1	6	3	71

Nests made of grass.

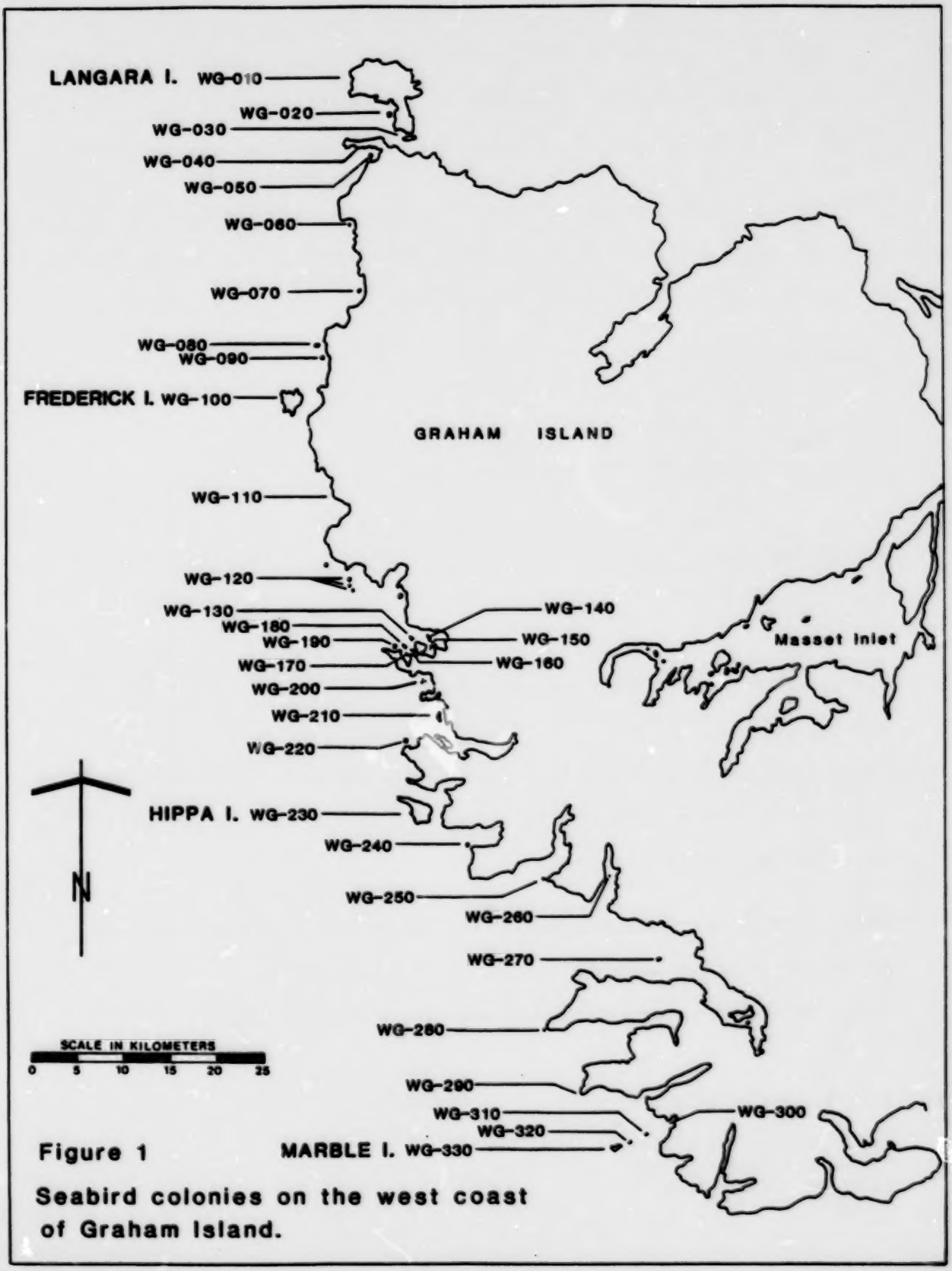

Figure 1

Seabird colonies on the west coast of Graham Island.

On 29 June, there were 2 adults sitting on nests on grass ledges on the cliffs on the west side of Iphegenia Point. 2 other adults were close by. This would give a total nesting population of 73 pairs for Langara Island.

PIGU: 1 nest with 2 newly hatched young - adult scared out from under rock. One other adult flew out of the PECO crevice, and there was one on the water in the PEFA crevice with a sandlance in its bill.

Other sightings:

PECO - 40 imm
GWGU - 150 imm
HEGU - 1 imm
PEFA - 1 young of the year flying

WG-020 Cox Island 103 K/3

M., C. & J. Rodway
29/06/86 17:45
Cloudy
We only boated by the south and west sides of the island at this time. Due to stormy weather we did not return as planned.

Nesting species:

PECO: Cormorants were not sighted, but we did not inspect the north and east sides of the island where they have been reported nesting in the past. There were none nesting here in 1981.

GWGU: 2 pairs of adults standing on the top of rock pinnacles: one on the SW and one on the NW corner.

TUPU: 23 adults on the water and flying around NW grass slope.

WG-040 "Knox" Cliffs 103 K/3

Cliffs on the north side of Lepas Bay.
M., C. & J. Rodway
03/07/86 13:00-13:10
Cloudy

The cliffs were checked with binoculars.

Nesting species:

PECO: Nesting on the cliffs and in the sea-cave of the large crevice below the 425′ hill on the north side of Lepas Bay. 26 nests counted with adults sitting on them - some with two adults at the nest. 20 adults and 14 immature roosting on the lower rocks.

WG-050 "Lepas" Islet 103 K/3

Unnamed islet (100′) in Lepas Bay.
M., C. & J. Rodway
03/07/86 13:10-13:30
Cloudy

Only the rocky area at the south end was explored.

Nesting species:

GWGU: Nesting on the south end of the islet at the edge of the vegetation. 7 adults were standing along the rock edge in this area. 1 nest with 3 eggs was found. Suspect 4 pairs nesting.

PIGU: 173 adults around the islet, mostly on the east side. 5 scared from holes under rocks; 2 nests inspected with 2 eggs each.

WG-060 "Sialun" Rock 103 K/3

Bare, 10′ rock in Sialun Bay.
M., C. & J. Rodway
03/07/86 14:00
Cloudy

We only boated by the islet due to the size of the swells.

Sightings:

GWGU: 6 adults were standing on the top of the rock.

WG-070 "Beresford" Islet 103 K/3

The outer west islet connected by extensive tidal area halfway between Caswell Point and Beresford Creek.
M., C. & J. Rodway
06/07/86 07:00
Cloudy

Description: Wooded islet with grass under spruce. Extensive rocky shoreline.

Nesting species:

BLOY: 1 nest with 3 eggs. Made of rock chips and shells on outer west rock of islet. 2 adults.

Other sightings:

BAEA - nest 15m high in 20m spruce in middle of islet. 2 adults.
SOSP

WG-080 "Grassy" Islet 103 F/14

Low (6') islet north of Frederick Island, south of White Point.
M., C. & J. Rodway
06/07/86 12:55-13:43
Sunny, SW winds.

Description: Low, grassy islet with Heracleum and vetch. Three-quarters surrounded by beach.

Nesting species:

BLOY:	Empty	1E	2E	2Y	Total
	12	2	1	1	16

Nests on the beach; made of small rocks and shells. May have been more chicks.

CWGU:	Empty	1E	2E	3E	2Y	3Y	Total
	2	2	2	4*	1**	1	12

* One of these nests had one addled egg, and one egg pipping.
** The 2 large young and an adult were dead.

Nests made of grass.

PIGU: 69 adults in water, on rocks and flying out of grass (16).

Other sightings:

HADU - 8
GWGU - 600 imm

WG-100 Frederick Island 103 F/14

Only the gull rock off Dalton Point was surveyed.
M., C. & J. Rodway
07/07/86 09:10-09:30
Cloud, rain, SW winds

Description: Steep-sided, eroded limestone rock with many sinkholes, arches and crevices. Mostly bare rock with pockets of Elymus and Cochlearia. Connected at low tide to main island.

Nesting species:

BLOY: 3 empty scrapes of rock chips. 2 adults.

GWGU:

Start	Empty	2E1Y	Total
3	1*	1	5

* with 1 broken eggshell.

Nests made of mostly Cochlearia with some Elymus.

PIGU:

2E	1Y	2Y	Adults
1	1	1	73

Nesting in holes in the limestone.

Other sightings:

BAEA - 5 imm on top
NWCR - 25 foraging in adjacent tidal area
CORA - 3 on islet and tidal rocks.
SOSP

WG-120 Tian Islets 103 F/14

M., C. & J. Rodway
07/07/86 13:00-18:20
Cloud, SW winds

Description: These are extensive, dissected rocks with generally steep sides to the east and sloping to the west. The islets appear uplifted from west to east. On the east side of both main islets are extensive low vegetated areas of Elymus and Angelica above broad cobble beaches. The higher portions of the rocks are grassy with many forbs: Montia, Castilleja, Angelica, etc. The grass is mostly Elymus with some Calamagrostis and other species. On the highest parts of both the large islets are clumps of windswept spruce.

Nesting species: Nests were tallied separately for discrete sections of the islets. The sections are ordered from south to north as follows:

1. Isolated ridge at the SW corner of the south islet.
2. Main section of the south islet.
3. Separate rock at the south end of the north islet.
4. Main section of the north islet.

PECO: Nesting at the following sites:

Section #1: - East side cliffs - 37 nests; 75 adults (br.) on ledges. Most nests with birds sitting, but about 1/3 had birds just standing beside them. Many nests had pairs at them.

- North cliff - 48 nests; 55 adults (br.) on ledges. All nests with adults sitting, some with a pair present. 12 immature and 14 breeding adults roosting below.

- West side bluffs - 8 nests with adults.

Most nests were inaccessible; of 7 inspected, 6 were empty and 1 contained 5 eggs.

Total 93 nests.

Section #2: - Cliffs on the east side of the SW finger - 5 nests with

adults; 22 adults on ledges, most just roosting.

TOTAL for Tian Islets - 98 nests

BLOY:	Empty	1E	2E	1Y	2Y	Total
#2	8*		1	3	1	13
#3	1**					1
#4	1**	3				4
TOTAL	10	3	1	3	1	18

* one nest with 1 broken egg.
** suspect chicks.

Nests made of rock chips and shells.

GWGU:	St	Emp	1E	2E	3E	2E1Y	1E2Y	1E1Y	1Y*	2Y	3Y	Total
#1	1	2	1	4	17		1		13	1	6	46
#2	6	23	10	9	91	2	10	1	30	24	23	229
#3	1	1	1	1								4
#4	3		1	1	1				4			10
TOTAL	11	26	13	15	109	2	11	1	47	25	29	289

* Nests marked 1Y (or 2Y) may often have had more chicks associated with them which we did not spend the time to find. When nests contained obvious signs of chicks (hatched eggshells, fish, trampled nests covered with droppings) we recorded them as 1Y even if we did not find any chicks.

Nests were made of grass. Nests on lower rocky areas had a higher proportion of eggs, and nests on higher sections had more of the young than the lower areas. Young were up to 20cm with wing feathers emerging from sheaths. Food fish observered were mostly herring (up to 18cm) and some sandlance (< 10cm). There were 600 immature gulls roosting.

PIGU:	1E	2E	1Y	2Y	Adults
#1		1			1
#2	1	3	1	1	66
#3					8
TOTAL	1	4	1	1	75

CAAU: Nesting on the highest parts of the two main sections (#2&4) where the soil is deep enough for burrowing, as well as under some of the large rocks on the high part of the north islet. They may also be nesting under the driftwood on the beaches. We saw droppings and some regurgitated food at the entrances to the burrows and rock cavities. No numbers were estimated, but I suspect the population may be about 100 pairs.

WG-130 Solide Islands 103 F/10

M., C. & J. Rodway
07/07/86 18:50
Cloudy, rain, SW winds

We only boated by the islands due to the waves and weather.

Nesting species:

BLOY: 2 adults on outer NW rocks. 1 appeared to come off a nest as we approached in the boat.

GWGU: 3 adults on the outer NW rocks, plus 1 in tidal area. 2 adults chasing a BAEA from the area.

PIGU: 1 flew out of a crevice.

Other sightings:

BAEA - 6 imm

WG-150 Pip Islets 103 F/10

M., C. & J. Rodway
07/07/86 19:10-19:25
Cloudy, rain, SW winds

Description: Low rock with grass, sedges and Angelica in cracks and pockets in the rock, and moss on the elevated portions.

Nesting species:

BLOY: 2 empty scrapes. 10 adults.

CWGU:

Empty	1Y	2Y	3Y	Total
4	3	2	1	10

More hidden young were suspected. 12 adults.

Other sightings:

BLTU - 2
SOSP

WG-180 Brock Islands 103 F/10

M., C. & J. Rodway
07/07/86 19:30
Cloudy, rain, SW winds
We only boated by the islands.

No seabirds were seen.

WG-190 "Kiokathli" Islets 103 F/11

Unnamed islets west of Brock Island.

M., C. & J. Rodway
07/07/86 19:40
Cloudy, rain, SW winds
We did not land on the islets due to the waves and weather.

Description: The north islet (100') is grassy on top with a small clump of spruce trees and snags. The south islet (40') is mostly bare rock.

Nesting species:

BLOY: 2 adult on top of south islet.

CWGU: 2 adults circling.

PIGU: 18 along east side of south islet.

Other sightings:

MAMU - 30 off east side of south islet.

BAEA - 26 peched on rocks, grass and in trees. Mostly immature and sub-adults, with a few adults.

WG-200 "Hosu" Islets 103 F/10

Unnamed islets in Hosu Cove.

M., C. & J. Rodway
07/07/86 20:20
Cloudy, rain, SW winds
We did not land due to waves and weather.

Nesting species:

GWGU: 3 adults on top of highest islet in the middle of the cove.

WG-220 Selvesen Island 103 F/10

M., C. & J. Rodway
09/07/86 15:00-15:20
Sunny, SW winds

Description: Gulls nesting on the north end rocky area, composed of two narrow, high, steep-sided ridges, with patches of grass, Angelica and other forbs.

Nesting species:

BLOY: 1 empty scrape of rock chips. Suspect young. 2 adults.

GWGU:	Empty	1E	3E	2Y	3Y	Total
	1	1*	1	1	1	5

* plus 1 hatched eggshell.

Nests made of grass. 10 adults.

WG-230 Hippa Island 103 F/11

M., C. & J. Rodway
08/07/86 18:20-19:20
Cloudy
We surveyed the gull rock at the NW corner, and boated around the island (13:00). We spent the nights of 7-9 July on the small island at the north end.

Description: The NW rock consists of three main knobs along a ridge. It is mostly bare with patches of Elymus, Angelica, Potentilla, Cochlearia and moss.

Nesting species:

FTSP & LESP: Intense activity every night we were on the north islet.

PECO: We went as close to the past nest site on the south end of the island as possible in the boat and no cormorants were seen this year, but past nest sites have been on landward faces of rock pinnacles which are only visible from the shore.

BLOY: 3 empty scrapes of rock chips. Suspect young. 5 adults.

GWGU:	St	Emp	1E	2E	3E	1E2Y	1E1Y	1Y	2Y	3Y	Total
	1	5	3	3	16	1	2	23	10	4	68

Nests made of grass, moss and Cochlearia. 1 dead young found. Food fish observed were mostly herring (up to 15cm); 1 greenling (8cm) seen. Many large, feathering chicks. They were wandering far from nests and were difficult to find.

TUPU: 40 on the water and flying off the south end.

Other sighting:

GWGU - 200 imm
RHAU - 100 around the west and south sides.

WG-240 Sadler Island 103 F/7,10

M., C. & J. Rodway
08/07/86 13:50-16:30
Cloudy

Description: Sadler consists of many dissected rock pinnacles with eroded arches and pools, joined by extensive flat, tidal rock. Pinnacles are covered with moss, Angelica, Potentilla, Sedum roseum, Rumex, Ranunculus and lichens.

Nesting species:

PECO: Nesting on cliffs at the north end. Not all nests could be inspected. Those that were, contained the following:

Empty	2E	3E	4E	Total
5	1	4	1	16

Adults sitting on all nests. 72 (20 br.) roosting on cliffs. Some nests just started.

BLOY:	Empty	2E	3E	Total	Adults
	7	1	2	10	53*

* Large flock of non-breeding birds.

Nests made of rock chips.

GWGU:	St	Emp	1E	2E	3E	2E1Y	1E2Y	1E1Y	1Y	2Y	3Y	Total
	4	15	11	9	22	3	3	8	18	11	10	114

Nests made of grass,moss, Cochlearia, Saxifraga, Angelica and seaweed. Many large young with feathers emerging. Nests with obvious signs of young (hatched eggshells, fish, trampled nests covered with droppings) were recorded as 1Y even if young were not found. Many nests marked 1Y likely had more that we did not find. Chicks were being fed mostly sandlance (6-10cm).

PIGU: 28 adults on rocks. 1 nest with 1 young found.

Other sightings:

HADU - 3 male, 1 female
GWGU - 42 imm

HG-310 Stiu Rock 103 F/2

M., C. & J. Rodway
11/07/86 16:15
Cloudy, rain, SW winds
We did not land due to waves and weather.

Description: Mostly bare rock with a higher grassy section.

Nesting species:

PECO: 8 on rocks (could not see if there were nests).

GWGU: 80 on territories.

Other sightings:

WHIM - 4

WG-320 Gagi Rock 103 F/2

M., C. & J. Rodway
11/07/86 16:00
Cloudy, rain, SW winds
We did not land due to waves and weather.

Description: Mostly bare rock with grassy patches.

Nesting species:

GWGU: 85 adults on territories.

PIGU: 2

WG-330 Marble Island 103 F/2

M., C. & J. Rodway
11/07/86 15:45
Cloudy, rain, SW winds
We did not land due to waves and weather.

Nesting species:

GWGU: 37 adults on rocks and cliff ledges and steep grassy bluffs on the SE corner. Some sitting on nests.

Other sightings:

PECO - 3 non-breeders.
COMU - 1 circling island.
TUPU - 55 on water and flying around island.
HOPU - 1 flying.
BAEA - 3 adults.
NWCR - 2

WEST COAST MORESBY ISLAND (Fig. 2)

WM-020 Saunders Island 103 F/1

Two bare rocks off the west end and one bare rock off the east end.
M. Rodway, D. Grinnell.
29/05/86 19:00
Cloudy, southwest winds.
We were unable to land on the outer west rock.

Nesting species:

	1E	2E	Total	Adults
BLOY:	2*	2	4	10**

* 1 nest had two older, broken eggs nearby.
** There was 1 pair on the outer west rock. Suspect 5 pairs nesting.

Nests made of rock chips.

GWGU: 12 adults on territories on the outer west rock, plus 1 pair just beginning to build a nest on the east rock. Suspect 7 pairs nesting.

PIGU: 2 birds around the east rock and 4 around the outer west rock. On 25 May at 11:00, there were 8 birds around the outer west rock.

WM-040 Willie Island 103 F/1

M. Rodway
15/05/86 10:45
Sunny

Description: This is a steep-sided, dome-shaped island, with grass, forbs and moss under spruce above the rocky shore.

Nesting species:

PIGU: 25 on the shore rock on the east side.

WM-070 Instructor Island 103 F/1

M. Lemon, M. Rodway
18/05/86 10:45 (BLOY); 30/05/86 10:00 (PIGU)
Cloudy, calm.

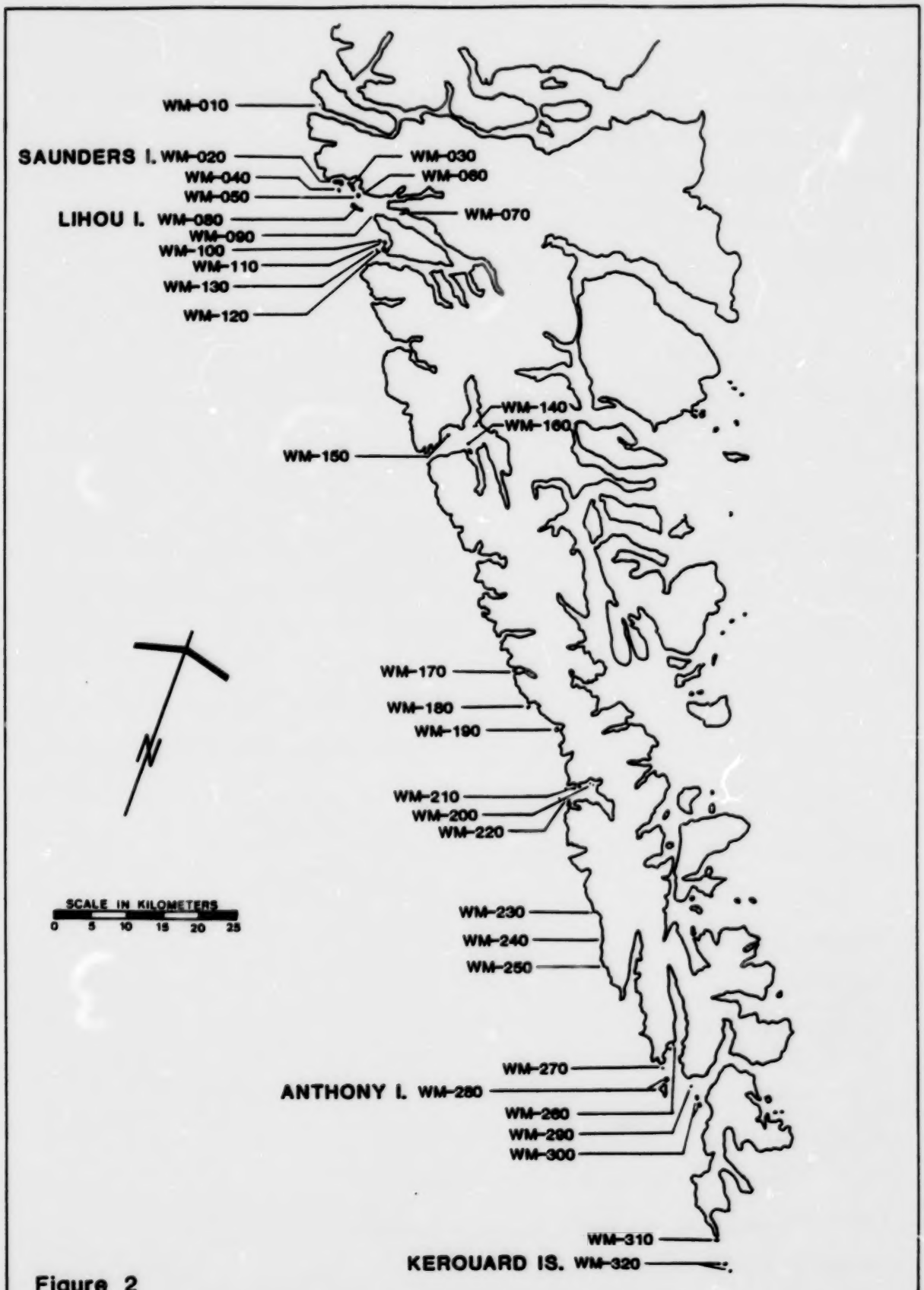

Figure 2

Seabird colonies on the west coast of Moresby Island.

Description: An oblong island with rocky sides, covered with moss under spruce and hemlock in the interior.

Nesting species:

BLOY: 1 nest with 3 eggs. Nest made of rock chips and clam shell fragments.

PIGU: 17 along the south-east side.

WM-080 Lihou Island 103 F/1

M. Lemon, M. Rodway, D. Garnier, D. Grinnell, D. Powell.
07/05/86 11:30 (PIGU); 21/05/86 (BLOY)
Cloudy, south winds.
Sea-caves, crevices, and the steep rocky shoreline were surveyed.

Nesting species:

PECO: 24 unattended nests in the east entrance to the large sea-arch on the mid-north side. No birds were present. We found 5 old eggshells below the nests.

BLOY: 1 nest with 3 eggs on the mid-south side. Nest was on a small grassy patch on the rock. Another pair was observed on the mid-north shore, but no nest was found.

PIGU: 80 around the shore rocks.

WM-090 Bone Point 103 F/1

M. Rodway
18/05/86 11:40-13:20
Cloudy, south winds.
We did not land on the point.

Description: Rocky point with steep faces and sharp pinnacles.

Nesting species:

BLOY: 1 pair present and suspected nesting.

GWGU: 35 adults on territory.

PIGU: 29 around the shore rock.

WM-100 Luxmoore Island 103 F/1

M. Lemon, M. Rodway
15/05/86
Cloudy, south winds.
Steep rocky shoreline was examined from the water.

Nesting species:

PIGU: 2 along the north side.

WM-110 Rogers Island 103 F/1

M. Lemon, D. Garnier
15/05/86
Cloudy, south winds.
The steep rocky shoreline along the south side was examined from the water, and the rocky, south-east end was explored on foot.

Nesting species:

BLOY: 1 empty scrape of rock chips on the south-east point. 2 adults present.

PIGU: 20 along the south side flying in and out of burrows and crevices, and sitting on the water.

WM-130 Moresby Islets 103 F/1

M. Rodway
15/05/86 14:20-17:45
Cloudy, south winds.

Nesting species:

BLOY: 2 birds on the north-west rock, but no nest was located and the birds were not defensive.

GWGU: 1 pair on the north-east pinnacle of the northern islet. A possible scrape was found where they may have been beginning to build a nest.

PIGU: 1 between the islets.

WM-230 "Lower Victoria" Rock 103 B/6

Unnamed rock south of the outlet from Lower Victoria Lake.
M. Lemon, M. Rodway.
13/06/86 18:30
Light cloud with outflow winds.
We did not land on the rock.

Description: This is a steep-sided rock separated from Moresby Island by narrow surge channels. Most of the rock is bare with a bit of grass on the highest inner portion.

Nesting species:

GWGU: 38 adults standing on territory - some were sitting on nests.

PIGU: 3 on water.

Other sightings:

BAEA - 2

WM-240 "Keyhole" Rock 103 B/3

Unnamed rock north of McLean Fraser Point.
M. Lemon, M. Rodway.
13/06/86 19:45
Light cloud with outflow winds.
We did not land on the rock.

Description: This rock has vertical sides with a hole through the middle. The top is grassy with a few fallen spruce.

Nesting species:

GWGU: 22 on territory.

TUPU: 26 on water in vicinity.

WM-250 "McLean Fraser" Pinnacle 103 B/3

Unnamed rock off McLean Fraser Point.
M. Lemon, M. Rodway.
13/06/86 18:00
Light cloud with outflow winds.
We did not land.

Description: Steep, bare, rock pinnacle.

Nesting species:

GWGU: 10 on territory.

PIGU: 2

Other sightings:

PECO - 1 imm.

WM-260 "Louscoone" Rocks 103 B/3

Two unnamed rocks along the west shore of Louscoone Inlet between Louscoone Point and Tsuga Point.
M. Rodway, D. Garnier, D. Grinnell.
17/06/86 10:40-10:55.
Rain showers with sunny breaks.

Description: These are low, bare rocks. The northern rock is 5m high and the southern rock is 2.5m high.

Nesting species:

BLOY: North rock: 2 nests with 1 egg each. Nests were made of rock chips and shells. 5 adult BLOY present.

South rock: 1 nest with 2 eggs. Made of rock chips, moon snail and other shell fragments. 4 adult BLOY present.

Total nests: 3 BLOY.

Other sightings:

GWGU - 1 adult present but not nesting.

WM-270 Adam Rocks 103 B/3

Including rock south of Louscoone Point.
M. Rodway, D. Garnier, D. Grinnell.
17/06/86 11:00-12:28
Cloudy with rainy and sunny periods.

Description: There were four islets where nests were located. These were numbered south to north. The higher portion of the main islet (#1) is grassy with a small clump of windswept spruce. Calamagrostis covers most of the

vegetated area mixed with Maianthemum, Montia, and Conioselinum. Elymus grows around the edges. The lower areas of this islet and the other islets are mostly bare rock.

Nesting species:

BLOY:

Islet	2E	1Y	Total	Adults
#1	1	1	2	8
#2			0	
#3				2
#4	1*		1	2
TOTALS	2	1	3	12

*(plus 1 GWGU egg)

BLOY nests were made of rock chips and limpet and mussel shells. The nest on islet #4 with the GWGU egg also contained Cochleria stems.

GWGU:

Islet	Start	Empty	1E	2E	3E	Total
#1	3	2	1	5	32	43
#2		2	1	1		4
#3						0
#4	1					1
TOTALS	4	4	2	6	32	48

GWGU nests were made of grass, moss, seaweed, Maianthemum, Saxifraga, Conioselinum, and Cochleria.

PIGU: 20 around Islet #1.

TUPU: 4 around Islet #1.

Other sightings:

PECO - 33 (2 br.) roosting on Islet #3.
HADU - 1 male
SOSP
PISI

WM-280 Anthony Island and surrounding islets 103 B/3

M. Rodway, D. Grinnell, D. Garnier.
16/06/86 17:00-18:00 and 17/06/86 12:30-19:50
Sunny with some cloud.

For habitat descriptions see Rodway and Lemon 1988b. The numbering used below for the surrounding islets is the same as in that report (Fig. 3).

Nesting species:

PECO: 14 nests were counted in two crevices on the SW side of the main island. Adults were sitting on 7 nests. 26 PECO (only 2 with breeding patches) were flying around the cliffs. We suspect there were only 7 pairs nesting, which had built duplicate nests in the two separate crevices.

BLOY:

Islet	Empty	1E	2E	3E	3Y	TOTAL	Adults
#1			1			1	1
Rk SW of #2	2					2	2
#16	1			1		2	2
NW pt. of Anthony	1					1	1
#22		1			2	3	4
#24							3
#25		1				1	2
#27				1		1	2
TOTAL	4	2	1	2	2	11	17

Nests were made of rock chips, mussel, barnacle, and limpet shells.

GWGU:

Islet	Start	Emp	1E	2E	3E	4E	2E1Y	1E2Y	1E1Y	3Y	2Y	1Y	TOTAL
#1	4	16	3	21	171	4		4	1				224*
#3		1			10								11
MAIN NW	2				4								6
#22	4	1	1	6	32								44
#24	1	1	1	1	14								18
#25			3	3	19								25
#26					1								1
#27			1	1	1								3
TOTAL	11	19	9	32	252	4		4	1				352

*plus 20 estimated on two inaccessible pinnacles - included in total.

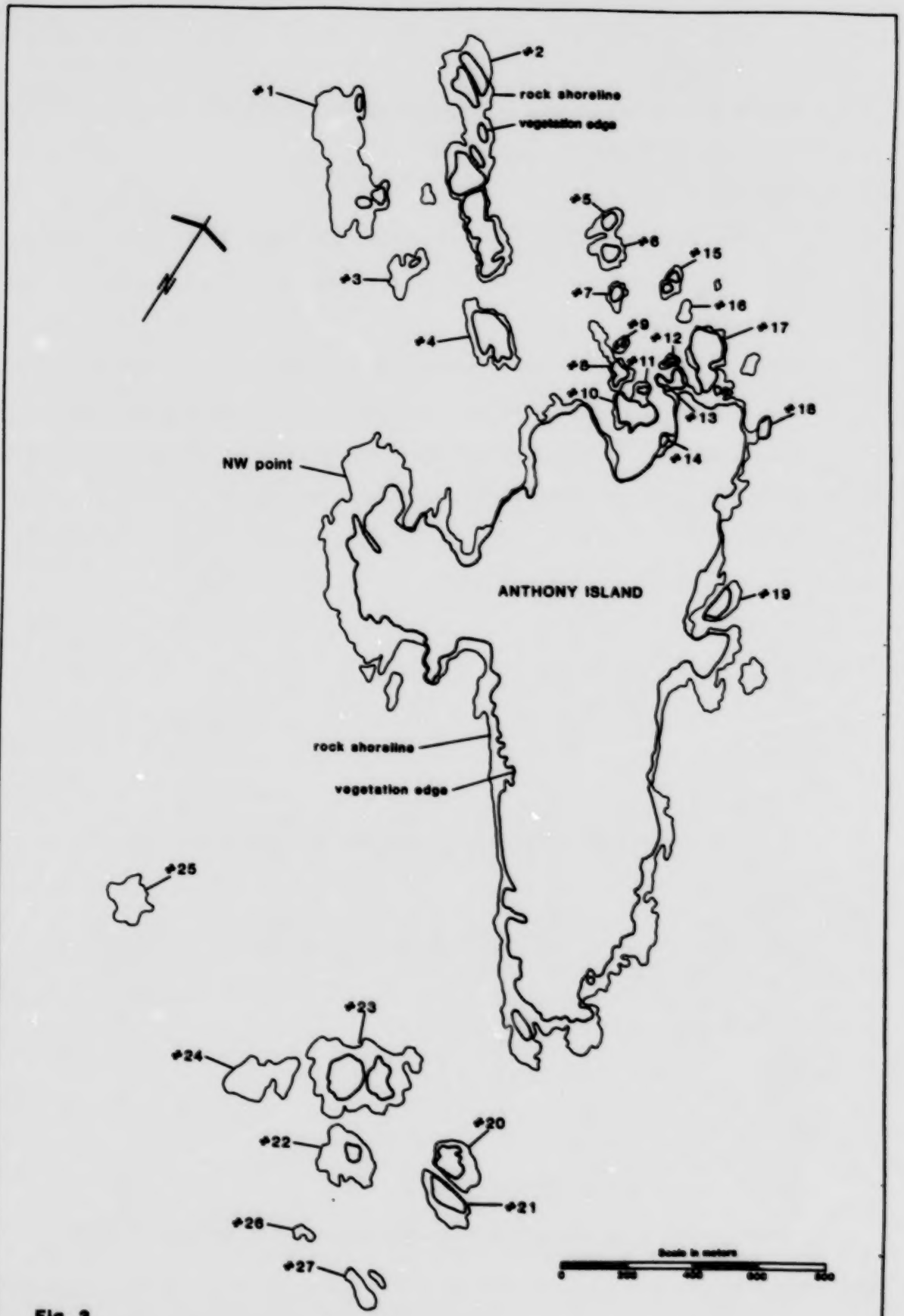

Fig. 3

Locations of islets surrounding Anthony Island.

Nests were made of grass, Cochlearia, and Achillea, with seaweed occurring in nests close to the tide line.

PIGU:

Islet	1E	2E	Adults
#1			14
#3			5
MAIN NW	1		
#22		3	8
#24			10
#25			3
TOTAL	1	3	40

CAAU: On the 72′ islet (#24) there are two patches of Elymus where 33 CAAU burrows were found. One adult incubating an egg was pulled from one burrow.

TUPU: 5 TUPU were flying around islet #1; 3 TUPU were flying around the NW tip of the main island; and 24 TUPU were on the water and flying into the grassy slopes on the SW side. 5 large burrows that were suspected to be TUPU were found in the Elymus patches on the 72′ islet (#24). No adults were seen in the immediate vicinity.

Other sightings:

PEFA
NWCR
SOSP
Hair Seal - 20 adults with 4 pups in the pools on the 23′ islet (#22).

Northern Sea Lion - 50 were counted on the S and W side of the 42′ rock (#25). They were in two harem groups plus 5 loners.

WM-290 Flatrock Island 103 B/3

M. Rodway, D. Garnier, D. Grinnell.
16/06/86 13:50-15:45.
Cloudy.

Description: Flatrock is 21m high with deeply creviced, cliffy sides and a stepped, flat top. There are thin, horizontal crevices under large slabs of rock on the top. Grass and scattered other forbs such as Fritillaria and Rumex grow along cracks in the rock. On the higher NE side is a wet area with sedges and water parsley.

Nesting species:

BLOY: 2 nests; one with 2 eggs and one with 3 eggs. Nests were made of rock chips and limpet, mussel, abalone, and blue top snail shells.

GWGU:

Start	Emp	1E	2E	3E	4E	2E1Y	1E2Y	1E1Y	3Y	2Y	1Y	TOTAL
5	3	5	10	114	4		1		2	1		145

Nests were made of grass, Fucus, Cochlearia, Achillea, Saxifraga, fresh salal leaves, spruce twigs, Heracleum, Angelica, and Rumex. 6 nests with 3 eggs had pipping eggs. All nests with young and/or pipping eggs were located on the highest portion of the island.

PIGU:

1E	2E	Adult on eggs	Adults
2	2	1	24

TUPU: 8 incubating adults were found in rock crevices. 3 other adults were seen flying out of crevices. 8 adults were counted on the water around the island.

Other sightings:

PECO - 66 roosting (2 with breeding patches).

WM-300 Gordon Islands 103 B/3

Small rocks off the NW corner.
M. Rodway, D.Garnier, D. Grinnell.
16/06/86 15:50-15:55
Cloudy, SW winds.

Nesting species:

GWGU: 1 start - few Cochlearia stems collected. 2 adults.

PIGU: 26 along the W side of the main island.

Other sightings:

TUPU - 1

WM-305 Kunghit Island (West side) 103 B/3, 102 O/14

M. Rodway, M. Lemon, G. Kaiser, D. Powell, D. Garnier, D. Grinnell, H. Hay, N. Holmes.
05-17/06/86

Location names listed below are mapped on Figure 4 (from Rodway and Lemon 1988a).

Description: "Bowles" Rock, off the NW corner of the Bowles Point peninsula, was specifically surveyed for Glaucous-winged Gulls and associated species as part of this survey. It is mostly bare rock with patches of grass and Conioselinum.

Nesting species:

BLOY:

WEST COAST	Emp	1E	2E	1Y	Total	Adults
"Bowles" Rock		1	2		3	6
Barber Point						2
Cape (W side)					1	2 (scared off nest)
Total		1	2		4	10

Nests were made of rock chips and shells.

GWGU:

WEST COAST	Empty	1E	2E	3E	Total	Adults
"Bowles" Rock	2	1	2	6	11	46

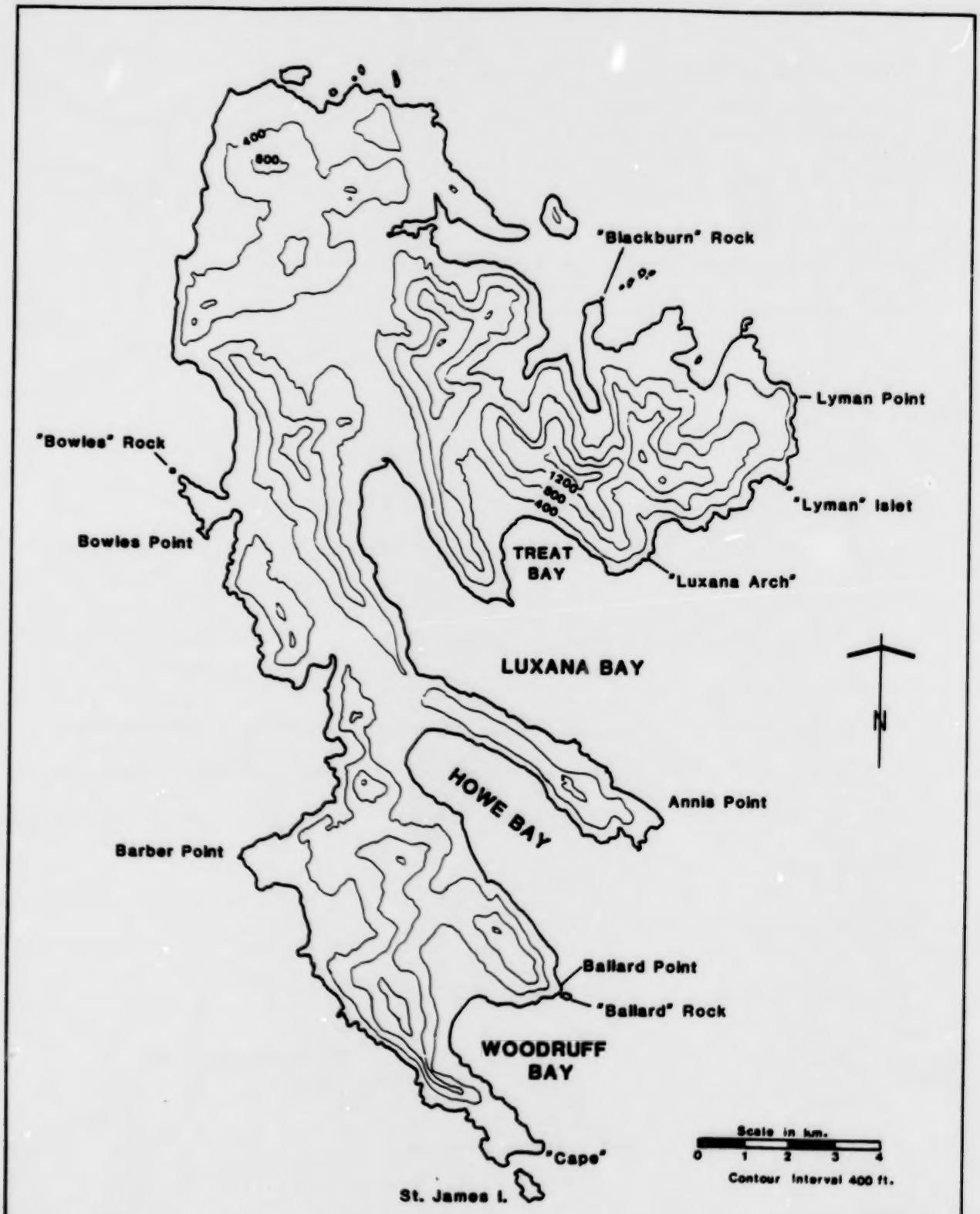

Fig. 4

Named locations around Kunghit Island.

Nests were made of grass. They were located on lower S and W portions of "Bowles" Rock, not on the higher section. 46 adults and 14 immature gulls were present.

PIGU:

WEST COAST	Adults
"Bowles" Rock	4
Bowles Point	15
Barber Point	15
Total	34

WM-310 St. James Island 103 0/14

M. Lemon, G. Kaiser, D. Powell, D. Garnier, H. Hay, N. Holmes.
10/06/86 12:00-17:00 and 12/06/86 11:00
Sunny

Nesting species:

PECO: 6 nests were counted on the cliffs on the SW corner. Adults were incubating.

GWGU: 152 gulls were counted on territories on rock and grassy ledges and slopes along the west side from the SW corner to the draw. 33 could be seen to be obviously incubating. 36 nests were accessible on the SW corner with the following contents:

Empty	1E	2E	3E
7	3	4	22

PIGU: 16 adults were counted on the water around the island.

Other sightings:

BLOY - 3
RUHB
NWCR
OCWA
SOSP
River Otter - runs and scats of fish at the north end.

WM-320 Kerguard Islands 103 0/14,15

M. Rodway, D. Grinnell, M. Lemon, G. Kaiser.
10/06/86 11:00-13:30 & 21:50-22:50 and 12/06/86 10:30-18:00
Sunny.

All the islets were circumnavigated by boat, though we did not approach too closely to Sea-Lion Rock so as not to displace the sea-lions.

Nesting species:

GWGU: No nests were inspected - The following numbers of adults on territories were counted from the water:

1 mile:	E side	- 21
	S end	- 19
	W side	- 8
	Total	48
Sea-Lion Rock:	E side	- 12
	W side	- 26
	Total	38
2 mile:	N rocks	- 9
	SE rock	- 28
	W side	- 28
	Total	65
	TOTAL:	151

PIGU: The following numbers were counted on the water and on the rocks:

1 mile:	E side	- 21
2 mile:	E side	- 47
	TOTAL	68

Other sightings:

SOSH - 1000's streaming S, passing betweeen mile 1 and 2 islands from the NW.
HEGU - 1 imm
COMU - 300 - none observed nesting.
ANMU - 1
RHAU - 6
PEFA - 1 pair (1 eyrie)
BAEA - 1 ad, 7 imm
Northern Sea-Lion:

mile 1	-	11
Sea-Lion Rock	-	727 (6+ harems with pups)
mile 2	-	82 (3 groups)
Total		820

EAST COAST MORESBY ISLAND (Fig. 5)

EM-010 Kunghit Island (East side) 103 B/2,3 102 O/14

M. Rodway, M. Lemon, G. Kaiser, D. Powell, D. Garnier, D. Grinnell, H. Hay, N. Holmes.
05-17/06/86

See Fig. 4 for locations of site names listed below (Rodway and Lemon 1988a).

Nesting species:

PECO: "Luxana" Arch - 22 nests, 60 PECO (28 br). Adults sitting on nests.

BLOY:

	Emp	1E	2E	1Y	Total	Adults
EAST COAST						
"Ballard" Rk.	1				1	2
Luxana Bay (SW)	1				1	2
"Blackburn" Rk.				1	1	2
TOTAL	2			1	3	6

GWGU:

	Empty	1E	2E	3E	Total	Adults
EAST COAST						
"Ballard" Rk.	1	1		2	6*	18
Luxana Arch						8
"Lyman" Islet						16
TOTAL	1	1		2	18(Est)	42

*2 nests with unknown contents.

PIGU:

	Adults
EAST COAST	
Ballard Point	4
Annis Point	8
E of Treat Bay	2
Lyman Pt. & S	107
Total	121

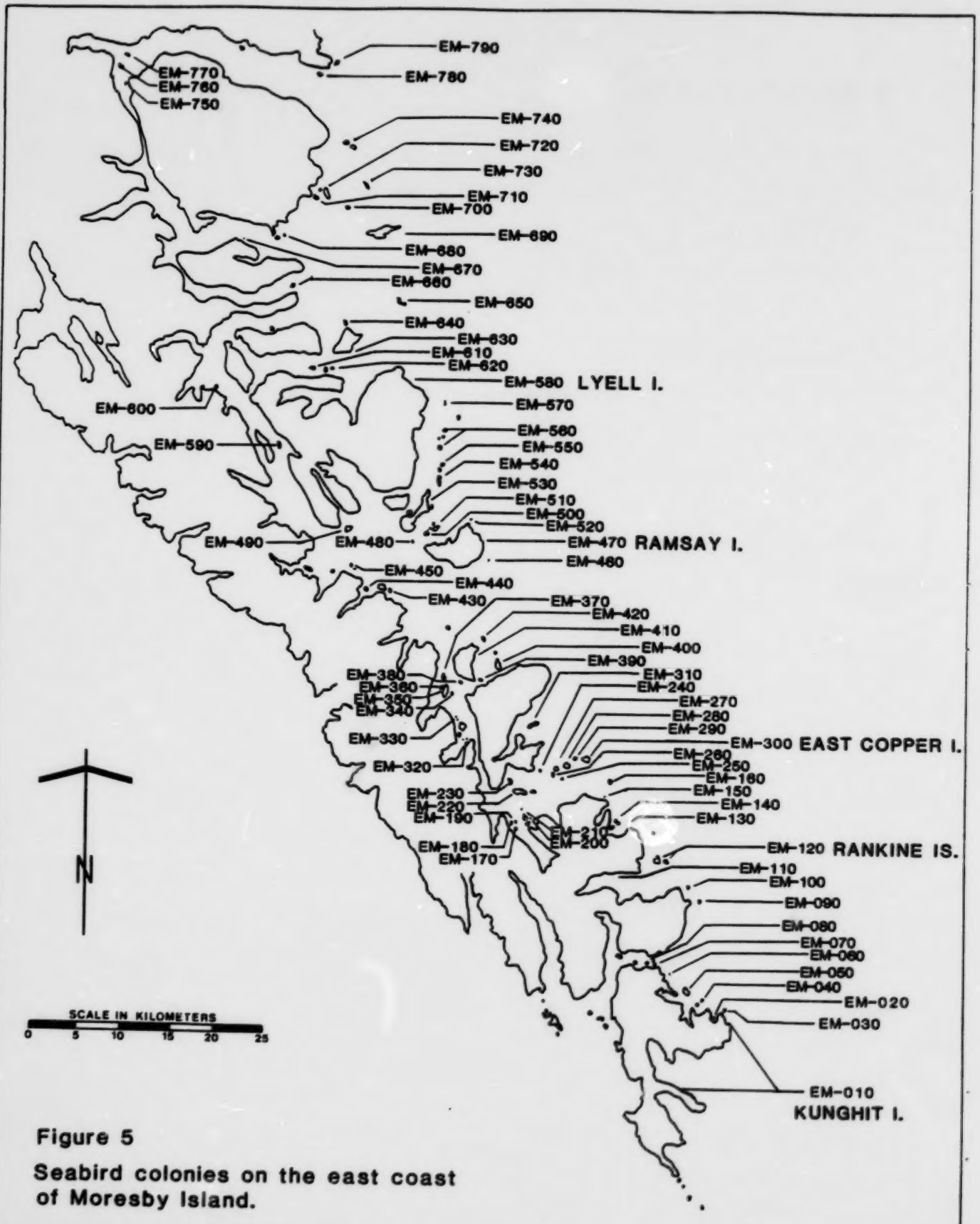

Figure 5

Seabird colonies on the east coast of Moresby Island.

EM-020 Marshall Island 103 B/2

M. Lemon, M. Rodway, D. Garnier, H. Hay, N. Holmes.
06/06/86 10:30-11:00
Cloudy

Description: Marshall is a cigar shaped island with rocky shores, rising to about 8m. It is almost completely covered with thick salal under a spruce, cedar, and hemlock forest. Crabapple grows along the shore. There are small fringes of grass and moss on the perimeter.

Nesting species:

BLOY: 5 adults were present. One pair on the north end was excited, but no nest was found.

PIGU: 27 adults were on the water around the island. We found 17 burrows on the edge of the vegetation. One adult flew out of one burrow. No contents were determined.

Other sightings:

BAEA - 1 nest in center of the island: 7m high in 16m spruce. No adults present.
NWCR - 6
River Otter - runways and scats.

EM-030 Gull Islet 103 B/2

D. Grinnell, M. Rodway.
18/06/86 11:55-12:15
Sunny

Description: Gull Islet is an extensive, dissected, low rock, with an area of grass and stunted spruce on the southern portion.

Nesting species:

BLOY: 1 empty and 1 nest with 2 eggs. Nests made of rock chips. 4 adults.

GWGU: 2 adults. No nest found, but area was extensive and nest could have been missed.

PIGU: 8 adults on rock and water. 1 flew from a crevice.

EM-040 Rainy Islands 103 B/2

D. Garnier, M. Rodway.
05/06/86 14:00-15:30 (larger islands), 18/06/86 11:50-12:30 (Gull rocks)
Cloudy (05/06), sunny (18/06)

Description: The islands are steep-sided, deeply dissected rocks. The two larger islands are forested with predominantly spruce. Much of the understory is salal, with areas of moss and mossy deadfall occurring in the interior. There are grassy slopes on the NW side, and dense regenerating spruce on the SE and top of the northern island. The two smaller east islands are mainly bare rock.

Nesting species:

BLOY: 6 adults: 1 hatched eggshell found near 1 pair on the larger north island; 1 empty nest on the south rock, and 1 nest with 2 eggs on the north rock. Nests made of rock chips, limpet and mussel shells.

GWGU: Nesting on east rocks:

	Start	empty	1E	2E	3E	Total
N rock	1	1	2	2	12	18
S rock		1			7	8
TOTAL	1	2	2	2	19	26

PIGU: 6 PIGU were flushed from inaccessible nests on the larger islands; 14 were on the rocks and water around the east rocks.

Other sightings:

PECO - 4 imm
HADU - 1 male
BAEA - nest 15m high in 16m snag at the NW corner of the southern forested island.
RUHB
NWCR

EM-060 Haydon Rock 103 B/3

NW of High Island.
M. Rodway, D. Garnier, D. Grinnell.
18/06/86 12:40-12:50

Description: Bare rock.

Nesting species:

BLOY: 1 nest with 2 eggs. Rock chips and shells. 2 adults.

GWGU: 1 nest with 1 egg. Bark, woody stalks of Rumex, and grass. 2 adults.

EM-100 Garcin Rocks 103 B/2

West of Benjamin Point.
M. Rodway, D. Garnier, D. Grinnell.
18/06/86 15:37-16:38
Sunny

Description: Mostly bare rock with patches of grass and forbs, and a pocket of sedges in the low, middle top. Rumex and Oenanthe are common. There is a light beacon on the NE section. Scattered old batteries and wood, as well as two old light stands litter the area.

Nesting species:

GWGU:	Start	Emp	1E	2E	3E	4E	Total
W section	2	3	4	5	31		45
NE section			3	3	22		28
SE rock		4	1	4	19	1	29
TOTAL	2	7	8	12	72	1	102

Nests were built of Rumex, Cochlearia, Oenanthe, grass and Fucus.

PIGU:	1E	2E	Total
	2	1	3

Nests under rocks and in crevices. 6 adults around rocks.

Other Sightings:

PECO - 29 non-br. roosting.
GWGU - 30 imm
Hair Seal - 19

EM-120 Rankine Islands 103 B/6

M. Rodway, D. Garnier, D. Grinnell.
18/06/86 17:22 - 19/06/86 11:45
Sunny

We surveyed the gull colony on the south tip of the east island on 18 June, and the small rocks at the north end of the west island on 19 June.

Nesting species:

BLOY:	Emp	1E	2E	1Y	Total	
S pt. of E island	1			2	3	(chicks suspected in empty nest)
Rocks off N end of W island: S rock			1		1	
N rock		1			1	
TOTAL	1	1	1	2	5	

Nests made of mussel, limpet and abalone shells and rock chips.

GWGU:	Emp	1E	2E	3E	Total
S pt. of E island	1		2	39	42
N rock off W island				1	1
TOTAL	1		2	40	43

Nests made of grass, Cochlearia, and seaweed.

EM-130 Marion Rock 103 B/6

At the SE corner of Collison Bay.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 11:55-12:00
Sunny

Description: Small, bare, 3m high rock.

Nesting species:

BLOY: 4 adults present. One empty scrape was found, and there was one BLOY egg in the GWGU nest (see below).

GWGU: One nest had 2 GWGU eggs and 1 BLOY egg. The GWGU was incubating all 3 eggs. The nest was made of grass and moss. Only one adult gull was present.

EM-140 Nest Islets 103 B/6

In Collison Bay.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 12:05-12:35
Sunny

Description: The smaller SE islet is mostly bare rock with grass and a few spruce trees on the top. The NW islet is forested with spruce and cedar with grass and moss around the edges.

Nesting species:

BLOY:	Emp	1E	2E	Total	Adults	
SE islet	1			1	2	(broken eggshell nearby)
NW islet			3	3	6	
TOTAL	1		3	4	8	

Two nests were just depressions in the grass and moss, one with a few shells; the other 2 were on rock, one with rock chips and one with shells. One nest with 2 eggs had a third, cracked egg in a puddle outside the nest.

PIGU: 25 adults were on the rocks on the SE islet. We found no sign of nest sites, though there were suitable crevices and boulders.

Other sightings:

HADU - 1 male
BAEA - 2
River Otter - runs on the SE islet

EM-150 Inner Low Rock 103 B/6

North of Ikeda Point.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 12:45-12:54
Sunny

Description: Bare rock with scattered Potentilla villosa.

Nesting species:

BLOY: 1 nest with 2 eggs. On rock with a few rock chips and shells. 4 adults.

EM-160 Joyce Rocks 103 B/6

North of Ikeda Point.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 13:00-14:30
Sunny

Description: Joyce Rocks consist of two groups of tidally connected rocks with a passage between them.

Nesting species:

BLOY: 1 nest with 1 egg. Made of rock chips.

GWGU:		Start	Empty	1E	2E	3E	Total
NE group:	N rock		1	7	18	44	70
	S rock	1	2	10	7	17	37
SW group:	SE rock	2	1	4	14	34	55
	Middle rk	1	2	4	10	15	32
	SW rock	1	1		1		3
TOTAL		5	7	25	50	110	197

Nests were made of seaweeds (Fucus, eelgrass, and others) and grass. A number of nests were situated very low on the rocks - in the black algae zone, as low as 1.5m above the barnacle zone. Heavy seas in any kind of storm would have washed these lower nests away. We found one dishevelled nest with 3 broken eggs. One empty nest had one broken egg and one displaced egg in a nearby puddle.

PIGU: 9 adults between the rocks.

Other sightings:

Hair Seal - 10

EM-190 Green Rock 103 B/6

In Huston Inlet.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 18:20-18:40
Sunny

Description: Eroded limestone rock with many sinkholes, arches and crevices. Lush growth of Elymus, Conioselinum, and Mimulus in sinkholes and interior pockets in the limestone.

Nesting species:

BLOY:	2E	3E	Total	Adults
	2	1	3	6

Nests made of rock chips and mussel, clam and limpet shells. Two were on rock, one on a worn dirt bowl in the grass.

GWGU: 3 nests with 3 eggs each. Made of grass and hidden in the Elymus.

PIGU:	1E	2E	3E	Adults
	1	3	1	21

PIGU nesting in burrow-like crevices in sunken pockets in the limestone in the middle of the island (10m from edge). Nest entrances were often concealed by the lush Elymus. Birds had to "helicopter" up out of these depressions before they could fly to sea.

EM-210 Bush Rock 103 B/6

M. Rodway, D. Garnier, D. Grinnell.
19/06/86 18:10-18:16
Sunny

Description: Grassy rock with one small spruce tree just escaped from deer browsing.

Nesting species:

BLOY: 2 adults present but they were not defensive and no nest was found.

PIGU: 1 adult flew off of rock.

EM-220 Bolkus Islands 103 B/6

Rock at east end.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 17:18-17:22
Sunny

Description: Mostly bare rock with a few flowers.

Nesting species:

BLOY: 2 empty scrapes of limpet, mussel and chiton shells on worn dirt bowls.

2 adults.

GWGU: 1 grass nest with 3 eggs. 1 adult.

EM-230 Swan Islands 103 B/6

Grassy rocks at east end.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 17:45-17:58
Sunny

Description: Eroded limestone rocks with grassy tops - mixed with Fritillaria and Angelica.

Nesting species:

BLOY:	1E	2E	Total
N rock	1	2	3
S rock		1	1
TOTAL	1	3	4

Nests made of rock chips and clam and mussel shells.

GWGU: 1 nest with 1 egg. Made of grass.

PIGU: 4 adults.

EM-240 "Pelican" Rock 103 B/6

Unnamed rock S of Pelican Point.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 17:30-17:35
Sunny

Description: Bare rock.

Nesting species:

BLOY: 2 nests with 2 eggs. Made of rock chips and shells. 4 adults.

GWGU: 1 empty nest and 1 dishevelled nest start. Nests made of grass and seaweed. 2 adults.

EM-250 Slug Islet 103 B/6

M. Rodway, D. Garnier, D. Grinnell.
19/06/86 16:30-17:05
Sunny

Description: Low rocky islet with grassy center and a clump of short spruce trees. Elymus, Angelica and Mimulus are common. There is a small, bare rock connected by the tide off the S side.

Nesting species:

BLOY: 2 empty scrapes. 4 adults.

GWGU:	Start	Empty	1E	2E	3E	Total
Main islet	4	7		3	25	39
S rock	1	1			7	9
TOTAL	5	8		3	32	48

Nests made of grass.

PIGU: 1 nest with 1 egg found under rock. 5 adults present.

Other sightings:

HADU - 16 male
BAEA - 2 adults. Nest 3m high on branch of low spruce. 1 broken eggshell at base of tree. Nest was empty.
RUHB - 2

EM-260 Rock Islet 103 B/6

Unnamed rocks around Rock Island: rock N of Rock I. ("Lupine" Rocks), and rock E of Rock I.(connected by tide).
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 15:55-16:15
Sunny

Description: The rock N of Rock I.is a sharply eroded, volcanic rock with many small cavities and crevices. It has a low, center vegetated area of Elymus, Lupinus, Angelica and Conioselinum. The rock E of Rock I. is a long, thin, low, eroded limestone rock with little vegetation.

Nesting species:

BLOY:	Emp	1E	2E	2Y	Total	Adults
N of Rock I.		1		1*	2	4
E of Rock I.	2				2	4
TOTAL	2	1		1	4	8

*This nest had 2 hatched eggshells in it. The young were not found, but the parents were excited. Nests were made of mussel, limpet and barnacle shells, and rock chips. Three were on rock and the other was a worn dirt bowl.

GWGU: One nest with 3 eggs made of grass on rock N of Rock I. 2 adults.

PIGU: 2 adults flew out of crevices on rock N of Rock I. 1 empty nest found with old broken egg.

Other sightings:

Hair Seal - 4

EM-270 Skincuttle Island 103 B/6

Rock south of Skincuttle I. (connected by tide).
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 16:15-16:25
Sunny

Description: The rock S of Skincuttle I. is a small, grassy, dome-shaped rock.

Nesting species:

BLOY: 1 nest with 2 eggs. Nest made of rock and shell chips. 2 adults.

EM-310 Howay Island 103 B/6

M. Rodway, D. Garnier, D. Grinnell.
19/06/86 15:10-15:25
Sunny

Description: GWGU and PIGU nesting on the bluffs on the east end of the south side.

Nesting species:

GWGU:	Empty	3E	Adults	Total nests (Estimated)
	1	3	20	10

Only 4 nests were accessible on the cliffs. Gulls were sitting on nests on higher ledges. Nests made of grass.

PIGU: 2 adults flew out of nest sites at the top of the cliff above the arch.

Other sightings:

PECO - 12 imm
PEFA - male, female, and young flying
BAEA - 1 ad

EM-320 "Island Bay" Group 103 B/6

Unnamed group of islands at the mouth of Island Bay.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 19:45-19:50
Sunny

Description: The only seabirds observed were on the small, grassy, 8′ rock in the middle of this group.

Nesting species:

BLOY: 3 empty scrapes of rock chips and a few shells. 2 adults.

PIGU: 2 adults flying in the area.

EM-330 "Kat" Rocks 103 B/6

Rocks off north end of Kat Island.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 20:00-20:26
Sunny

Description: Two, low, grassy rocks, with two small crabapple trees on the southern one. Mostly Elymus and Angelica.

Nesting species:

BLOY:	Emp	1E	2E	3E	Total
S rock	1		1	2	4
N rock	2	1	2		5
TOTAL	3	1	3	2	9

Nests were made of rock chips and shells. Two were on worn dirt bowls in the grass, the rest were on rock.

GWGU:	Empty	3E	Total	Adults
S rock	1	1	2	2
N rock		4	4	3
TOTAL	1	5	6	5

Nests made of grass in grass.

PIGU:	Emp	1E	2E	Adults	Nests (estimated)
S rock	7	1	2	21	14
N rock				7	5
TOTAL	7	1	2	28	19

Nest sites were under rocks. We found three depredated eggshells. Empty nests were obvious worn spots under rocks, sometimes with eggshell fragments.

Other sightings:

NWCR - 2 empty nests on the ground against a rock and amongst the vegetation. Made of sticks lined with grass and moss.

EM-340 Centre Islet 103 B/6

Off the east side of Wanderer Island.
D. Powell, H. Hays, N. Holmes.
17/06/86

Description: Dense 1-2m salal under cedar, spruce and hemlock forest. Some crabapple and alder near shore, and open mossy areas at the north end.

Nesting species:

PIGU: 10-15 burrows found along the east side. 3 birds flushed from nests. Total of 10 adults present.

Other sightings:

COLO
SOSP
NWCR
River Otter - lots of sign
Racoon - Suspected sign.

EM-350 Wanderer Island 103 B/6

M. Rodway, D. Garnier, D. Grinnell.
19/06/86 20:45
Sunny
We only boated by the island.

We counted 35 PIGU in the bay at the N end. 2 BLOY were flying around rock at NW corner.

EM-360 Sela Islet 103 B/6

Off west side of Wanderer Island
D. Powell, H. Hays, N. Holmes. 17/06/86 - Main island.
M. Rodway, D. Garnier, D. Grinnell. 19/06/86 20:35-20:40 - Rocks at north end.

Description: About 2/3 covered with salal and 1/3 more open ground, under forest of spruce, cedar and hemlock. Rocks at the N end are bare.

Nesting species:

BLOY:	Emp	1E	1Y	Total	Adults
N rocks	3	1	1	5	4

Nests made of rock chips and shells.

PIGU: 40 adults counted around the islet.

Other sightings:

NWCR - 2 empty nests on the ground on the main island.
RUHB - 1 male
SOSP
Hair Seal - 10 on N rocks
River Otter - den, scats
Racoon - Suspected sign
Feather piles of GWGU and NWCR found. 2 ~10m sandlance found 10m from the edge of the vegetation.

EM-370 Park Island 103 B/6

D. Powell, H. Hays, N. Holmes.
17/06/86

Description: Mixed salal and open ground under cedar, spruce and hemlock, with an extensive blowdown near the south end.

Nesting species:

Storm-Petrel: No sign of active burrows. Two possible old burrows on the SE corner. One FTSP feather pile found.

BLOY: 2 chasing CORA from S beach rock.

PIGU: 25 gathered around the N end - 1 flew from rock face; and 2 off the W side.

Other sightings:

CORA - 4-Suspect 2 adults and 2 immatures.
River Otter - den, runs, scats and abalone shells.
A few burrows were found that contained large (1cm) rodent droppings.

EM-380 Koga Island 103 B/6

D. Powell, H. Hays, N. Holmes.
17/06/86
The island was only boated around.

Description: Dense salal under cedar, hemlock and spruce, with an extensive blowdown along the west and north sides.

Nesting species:

PIGU: 36 counted around island; all but 2 along the east side. 16 of these birds flew from sites on shore.

Other sightings:

BAEA - 1 adult
River Otter - runs

Monument Rock 103 B/6

Off the north end of Huxley Island.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 21:14
Sunny

We only boated around the rock. 1 BLOY was on the low rocks, otherwise we saw no seabirds.

EM-430 Marco Rock 103 B/11

East of Marco Island.
M. Rodway, D. Garnier, D. Grinnell.
19/06/86 21:44-22:05
Sunny

Description: Low, grassy rock with a profusion of blooming forbs: Epilobium, Montia, Achillea, Plantago major, Fragaria, Maianthemum, Fritillaria. Also a patch of Rubus spectabilis.

Nesting species:

BLOY:	Emp	2E	Total	Adults
	3	2	5	6

Nests made of rock chips and limpet and mussel shells.

GWGU:	2E	3E	Total
	1	17	18

Nests made of grass, Achillea, and Rumex.

PIGU:	1E	2E	Adults
	3	5	30

Adults were flying out of crevices and on the water.

Other sightings:

HADU - 57 males
NWCR - 1 empty nest under a rock; made of sticks lined with grass and cedar bark.

De la Beche Island 103 B/12

D. Powell, H. Hays, N. Holmes.
19/06/86
Only surveyed from boat.

Description: SW side is very low, but the NE and SE points are higher and steeper. Mostly covered with salal under dense cedar forest, with open areas on the points.

Sightings:

Two BLOY on the NW point, otherwise no sign of seabirds reported.
Two River Otters (adult and young) in NE bay.

EM-460 Tatsung Rock 103 B/11

D. Powell, H. Hays, N. Holmes.
20/06/86

Nesting species:

BLOY:	Emp	2E	Total	Adults
	1	3	4	8

GWGU:	Emp	2E	3E	Total	Adults
	4	5	2	11	24

Other sightings:

Hair Seal - 8 adults with 5 pups

EM-470 Ramsay Island 103 B/11

D. Powell, H. Hays, N. Holmes.
20/06/86

Cliffs, rocky points and islets around the perimeter were checked.

Nesting species:

PECO: There was lots of guano in the caves on the SW side, but no birds were present. Just east of Crombie Point, on the headland that is almost separated from the main island, there were 28 PECO in crevices in the rock face. No nests were visible, but they were suspected.

BLOY: 2 adults with 2 chicks on Crombie Point; 2 adults on the headland east of Crombie Point.

GWGU:	2E	3E	Total	Adults	Nests (estimated)
Crombie Pt.	1	8	9	18	9
Headland E of Crombie Point				12	6
Rock midway between Yadus Pt. and Andrew Pt.				2	1
TOTAL				32	16

PIGU: 1 bird on Crombie Point.

Other sightings:

PEFA - chasing BAEA off cliffs E of Crombie Pt.

EM-480 Ramsay Rocks 103 B/11

D. Powell, H. Hays, N. Holmes.
19/06/86

Nesting species:

BLOY: 5 adults present.

GWGU: 5 nests with 3 eggs each - all on NW side. ~15 adults.

Other sightings:

HADU - 24 male, 2 female

EM-500 Hotspring Island 103 B/11

D. Powell, H. Hays, N. Holmes.
20/06/86
Only the outer NE islets were surveyed.

Description: This small group of 3 islets consists of 5 or 6 rocky knobs connected by tidal or vegetated lowlands. The knobs are mostly covered with short salal under spruce, with some open, mossy spaces.

Nesting species:

PIGU: 10 nests estimated on the southern islet, one contained an adult on egg. 2 depredated eggs found. 2 adults on nests on the north islet. 5 adults around the west islet. Total nests estimated = 15.

Other sightings:

NWCR - 3 feather piles
VATH
River Otter - den and runs on S islet. Scats were of fish -no feathers.

EM-530 Murchison Island 103 B/11

Including rocks off east side.
M. Rodway, D. Garnier, D. Grinnell.
20/06/86 16:10-16:45
Cloudy, SE winds.
Only the rocks off the east side (due N of House I.), and the cliffs on the NE corner were surveyed.

Description: The rocks on the east side are mostly bare with patches of grass and forbs - Achillea and Sedum were in bloom.

Nesting species:

PECO: No adult PECO present, 1 imm only. Obvious roost sites but no nests.

BLOY:	Emp	2E	Total	Adults
	1	1	2	8

Nests on the east rocks - made of rock chips and a few mussel chips.

GWGU:		Start	Empty	1E	2E	3E	Total	Adults
E. Rocks:	SW	5	4				9	
	Middle	6	1	3	1		11	
	NE		1			3	4	
TOTAL		11	6	3	1	3	24	
NE cliffs (Not accessible)								7

Estimated 3 nests on cliffs, giving a total of 27 nests for the area. Nests made of grass, Rumex, Montia, and seaweed (in lower nests only).

PIGU: 10 birds around E rocks.

Other sightings:

PEFA - pair around cliffs.

EM-540 Agglomerate Island 103 B/11

M. Rodway, D. Garnier, D. Grinnell.
20/06/86 16:50-17:20
Cloudy, SE winds.
The 44 foot rock at the south end of Agglomerate, and the 19 foot rock off the east side were surveyed.

Description: The east rock is only a bare roosting rock. The south rock is mostly bare with small grassy patches.

Nesting species:

BLOY: 2 nests: 1 with 2E made of rock chips on a dirt bowl in a small patch of grass; 1 with 1 hatched eggshell and 1 depredated eggshell nearby - made of rock chips on rock (No young found). 4 adults.

GWGU:

Empty	3E	Total
1	1	2

Made of grass.

PIGU: 6 adults, 2 flying out of crevices.

Other sightings:

NWCR - 2
Hair Seal - 10

EM-550 Kawas Islands 103 B/11

M. Rodway, D. Garnier, D. Grinnell.
20/06/86 17:25-17:50
Cloudy, SE winds.

Description: Gulls nesting on the middle, horseshoe-shaped island. This rock is columnar basalt with many vertical projections and cracks. Bare with grass and Angelica on top.

Nesting species:

BLOY:

Emp	1E	3E	Total
1	1	1	3

Nests made of rock chips and mussel, limpet and abalone shells; 2 were on worn dirt bowls in grass, 1 on rock.

GWGU:

Start	1E	2E	3E	Total
2	1	2	6	11

Nest made of grass, Rumex and seaweed.

PIGU: 5 adults, 1 flew out of crevice.

Other sightings:

HADU - 2 male

EM-560 Tar Islands 103 B/11

Including rocks to west.
M. Rodway, D. Garnier, D. Grinnell.
20/06/86 17:55-18:46
Cloudy, SE winds.

Description: Gulls were nesting on the 38 foot rock west of the south Tar Island, the 12 foot rock west of the middle of the Tar group, and the second island from the north end. The two western rocks were mostly bare with some grass and forbs - Achillea, Mimulus and Ranunculus. The second from the north Tar Island is forested, with cliffs on the west side and an extensive rocky area on the north side where gulls were nesting.

Nesting species:

BLOY:	Empty	2E	3Y	Total
38′ rock			1	1
12′ rock		1		1
2′nd Tar	4			4
TOTAL	4	1	1	6

Nests made of rock chips and mussel and limpet shells.

GWGU:	Start	2E	3E	Total	Adults
38′ rock		1	8	9	
12′ rock	1	3	10	14	
2′nd Tar	1		4	5	18 (Nests on the cliffs were not all accessible)
TOTAL	2	4	22	28 (estimated total = 32)	

Nests made of grass, moss, Achillea, Rumex, Cochlearia and feathers.

PIGU: 1 bird around the 38′ rock.

Other sightings:

HADU - 9 male

EM-580 Lyell Island 103 B/11

M. Rodway, D. Garnier, D. Grinnell.
20/06/86 19:06
Cloudy, SE winds.
We only boated along the east side.

Nesting species:

PECO: 1 adult on a nest on the cliffs just N of Fuller Point. 1 other adult in breeding plumage present. There were no PECO present around the cave on the peninsula E of Dodge Point.

EM-620 Kul Rocks 103 B/12

D. Powell, H. Hay, N. Hay.
20/06/86
Cloudy, SE winds.
The rocks were only surveyed from the water.

Nesting species:

BLOY: 2

PIGU: 2

Other sightings:

BAEA - 1 adult
NWCR - 15
Hair Seal - 4

EM-650 Lost Islands 103 B/14

M. Rodway, D. Garnier, D. Grinnell.
20/06/86 19:40-21:00
Cloudy, SE winds.

Description: Gulls nesting on east and south rocky points. These are extensive rocky areas with grass and forbs on higher sections. Angelica is abundant. The east point has a group of 10m high spruce.

Nesting species:

BLOY:	Emp	1E	2E	Total
	1	1	1	3

Nests made of rock chips.

GWGU:	St	Emp	1E	2E	3E	2E1Y	1E2Y	2Y	3Y	Total
E point	10	6	3	3	21	1	1	3	1	49
S point	3	3	2	4	14					26
TOTAL	13	9	5	7	35	1	1	3	1	75

Nests made of grass.

PIGU: 6 adults present, 1 flew out of a crevice.

EM-680 Kingsway Rock 103 B/13

M. Rodway, D. Garnier, D. Grinnell.
21/06/86 10:10-10:57
Sunny, SW winds.

Description: Mostly bare rock with patches of grass and forbs - Achillea, Mimulus, Castilleja, Sedum, Saxifraga, and Fragaria.

Nesting species:

BLOY: 1 nest with 3 eggs - made of rock chips and shells. 4 adults.

GWGU:	Start	Emp	1E	2E	3E	Total
	5	7	3	3	25	43

Four empty nests contained depredated eggs: 3 with 2 eggshells and 1 with 1 eggshell. One nest with 1E also contained 1 depredated egg and 1 cracked egg. Nests made of grass - a few with moss and seaweed.

PIGU: 72 adults on rock and in water. 3 nests with 1E each found.

Other sightings:

PECO - 2 imm
River Otter - sign on S side of island - only 4 nests in this area (~1/4 of island area). Scats contained fish.

EM-690 Reef Island 103 B/14

M. Rodway, D. Garnier, D. Grinnell.
20/06/86 21:30-21:38
Cloudy, SE gales.
Only the bare rock at the east end was surveyed. Pelagic Cormorant data was supplied by A.J. Gaston who counted nests on 31 May 1986.

Nesting species:

PECO: 11 nests on the south side cliffs near the east end.

GWGU:

Start	Empty	2E	Total
1	1	5	7

Other sightings:

HADU - 5 male

EM-700 South Low Island 103 B/13

M. Rodway, D. Garnier, D. Grinnell.
21/06/86 11:36
Sunny, SW winds.
Circumnavigated by boat.

Nesting species:

BLOY: 2 on NE point.

GWGU: None present.

PIGU: 18 off E end.

EM-710 Vertical Point (Louise Island) 103 B/13

M. Rodway, D. Garnier, D. Grinnell.
21/06/86 11:23
Sunny, SW winds.

No PECO present on S side cliffs. 1 PIGU.

EM-730 Low Island 103 B/13

M. Rodway, D. Garnier, D. Grinnell.
21/06/86 11:50-12:45
Sunny, SW winds.

Description: Gulls nesting on the rock at the NW end. Mostly bare rock with

grass and forbs growing along cracks and in low areas on top: Achillea, Angelica, Sedum, Lupinus, Rosa, Fritillaria, Epilobium, Maianthemum and Mimulus. Old battery cases are strewn about from the light on the rock.

Nesting species:

BLOY: 1 empty nest of rock chips. 3 adults.

GWGU:	Start	Empty	1E	2E	3E	Total
	14	14	9	1	1	39

One empty nest contained a depredated egg. There was a feather pile of an adult gull.

PIGU: 45 adults present. 1 nest with 2E, and 1 empty nest with an old depredated egg were found in crevices. One recently depredated egg was also found.

Other sightings:

PECO - 1 imm
SOSP

EM-740 Skedans Islands 103 B/13

M. Rodway, D. Garnier, D. Grinnell.
21/06/86 13:10-14:14
Sunny, SW winds.

Description: Gulls nesting on the east rock which consists of massive, vertical blocks of bare rock with lower grassy patches between.

Nesting species:

GWGU:	Start	Empty	1E	2E	3E	Total
	6	13	1	13	16	49

Eggs were pipping in 1 nest of 2E. We found 7 depredated eggs and 3 gull feather piles. There was a BAEA feather beside one of the feather piles. Nests made of grass and Sedum.

PIGU: 78 birds present. We found 1 nest with 1 egg and 1 eggshell (could not tell if hatched or broken).

Other sightings:

PECO - 69 imm roosting on S and E sides.
BLOY - 2 flew away
TRES - 2 flying
River Otter - Old den site with piles of scats; fresh scats contained some feathers. There were trampled areas in the grass.
N Sea-Lion - No sea-lions were present.

EM-790 Cumshewa Island 103 G/4

M. Rodway, D. Garnier, D. Grinnell.
21/06/86 14:58-15:30
Sunny, SW winds.

Description: Bare rock with small patches of grass, Rumex, Achillea and Potentilla.

Nesting species:

BLOY: 1 empty scrape of rock chips and shell. 2 adults.

GWGU:

Start	Empty	1E	2E	3E	Total
3	8	5	8	13	37

Two empty nests contained a depredated egg each. Nests made of grass, Rumex and Cochlearia.

PIGU: 62 adults on rock and in water. 1 nest with 1E and 1 nest with 2E found.

Other sightings:

PECO - 21 imm
GWGU - 52 imm
Hair Seal - 30 on beach at west end.

SKIDEGATE INLET (Fig. 6)

Survey results for Skidegate Inlet are presented in tabular form only. No further information on specific islands was available. For details on the number of eggs found, see the summary tables under individual species accounts following all island accounts.

Table 1. Numbers of Black Oystercatcher and Glaucous-winged Gull nests, and adult Pigeon Guillemots counted in Skidegate Inlet between 22 June and July 1 1986.

	BLOY nests	GWGU nests	PIGU birds
SI-020 Gillat Island	3	40	11
SI-030 Torrens Island	1	0	
SI-040 Jewel Island			0
SI-050 Flowery Islet		21	
SI-060 "Kwuna" Rocks	3	12	26
SI-070 "Alliford" Its.	8	2	54
SI-080 Bush Island	4	12	56
SI-090 Lillihorn I.	3e	10	200
SI-100 Sandilands I.	10		20
SI-120 Maple Island	2e	7	60
SI-130 Gooden Island	0	0	
SI-150 Robertson I.	2e	0	
SI-160 Roderick I.	0		
SI-170 Balch Islands	1e	4	
SI-180 Tree Islet	0	0	
SI-190 Angle Island	4e	1	
SI-200 Claudet Island	5	0	
SI-210 Burnt Island	0	2e	50
SI-220 "Dyer Pt" Rks.	3	2	
SI-230 Meyer Island	1e	2e	34
SI-240 Treble Island			
SI-250 "Slatechuck" Its.	2	0	
SI-260 Hallet Island	3	1	
SI-270 Scalus Island	0	0	8
SI-280 Sandstone Is.	5e	0	200
SI-290 Berry Islands	3	0	
TOTALS	63	116	719
NUMBER OF SITES	18	13	11

e: nesting pairs estimated from number of adults present.

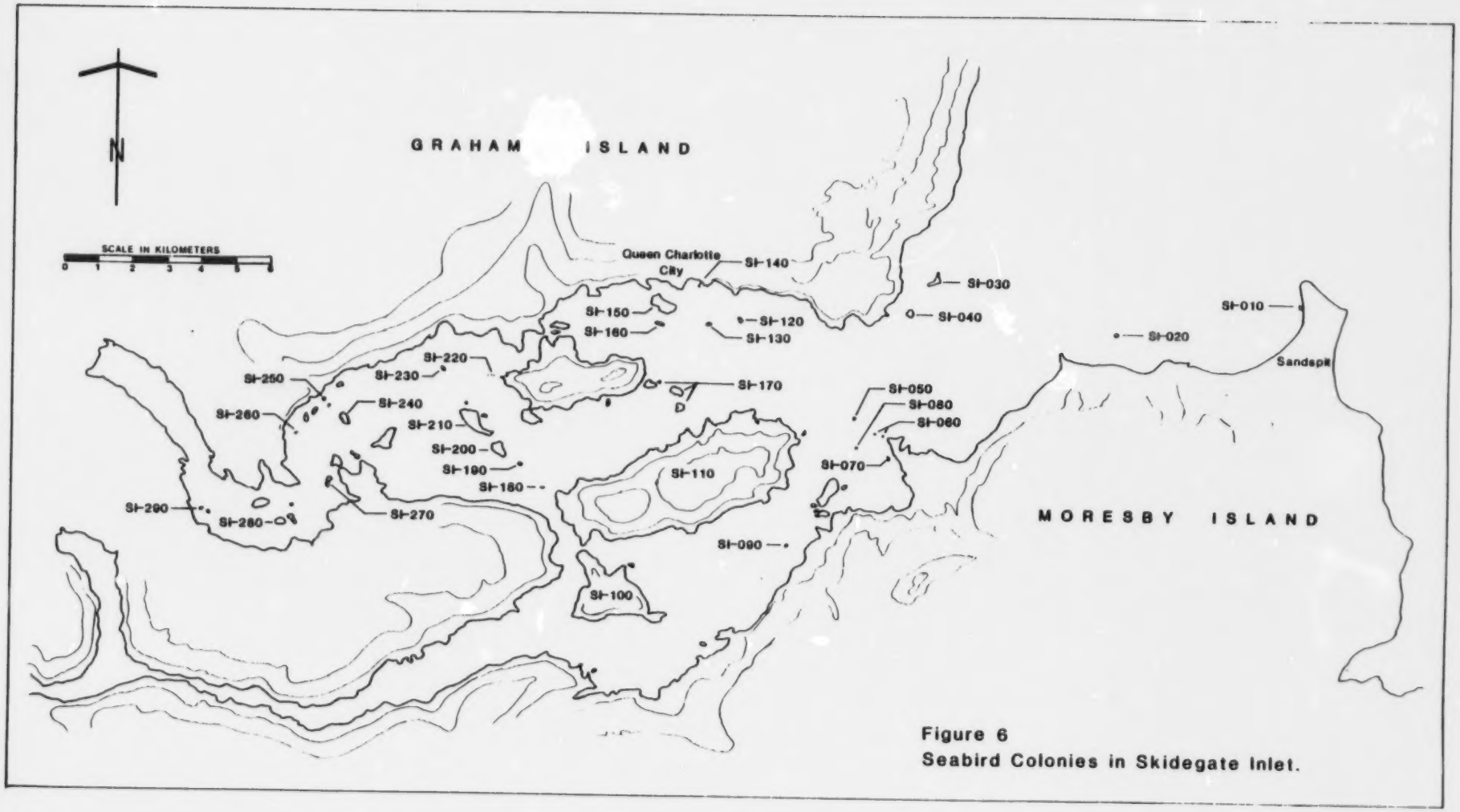

Figure 6
Seabird Colonies in Skidegate Inlet.

MASSET AND JUSKATLA INLETS (Fig. 7)

MI-010 Sloop Islet 103 F/16

M., C. & J. Rodway
24/06/86 13:40-14:02
Sunny

Description: Small, narrow islet covered with Elymus, Heracleum and Rosa.

Nesting species:

BLOY: 1 nest with 3 eggs; made of rock chips and shells. 6 adults - 4 in the intertidal area.

GWGU: 2 empty nests made of grass and Fucus. 2 adults.

PIGU: 1 nest with 2 eggs. 7 adults present; 3 flew out of burrow-like tunnels in the grass under the driftwood.

Other sightings:

NWCR - 1 empty nest under a log; made of bark and grass.
Hair Seal - 6

MI-030 Dawson Islands 103 F/9

M., C. & J. Rodway
24/06/86 15:44-17:19
Sunny

Description: Gulls were nesting at four locations in the Dawson Islands group:

1. 6m high rock to the east. This is a small, steep-sided island with salal, Elymus and other grasses and forbs, and one small willow tree on top.

2. The rock to the east with the light beacon. Top is covered with Elymus, Conioselinum, Maianthemum, Angelica and Castilleja.

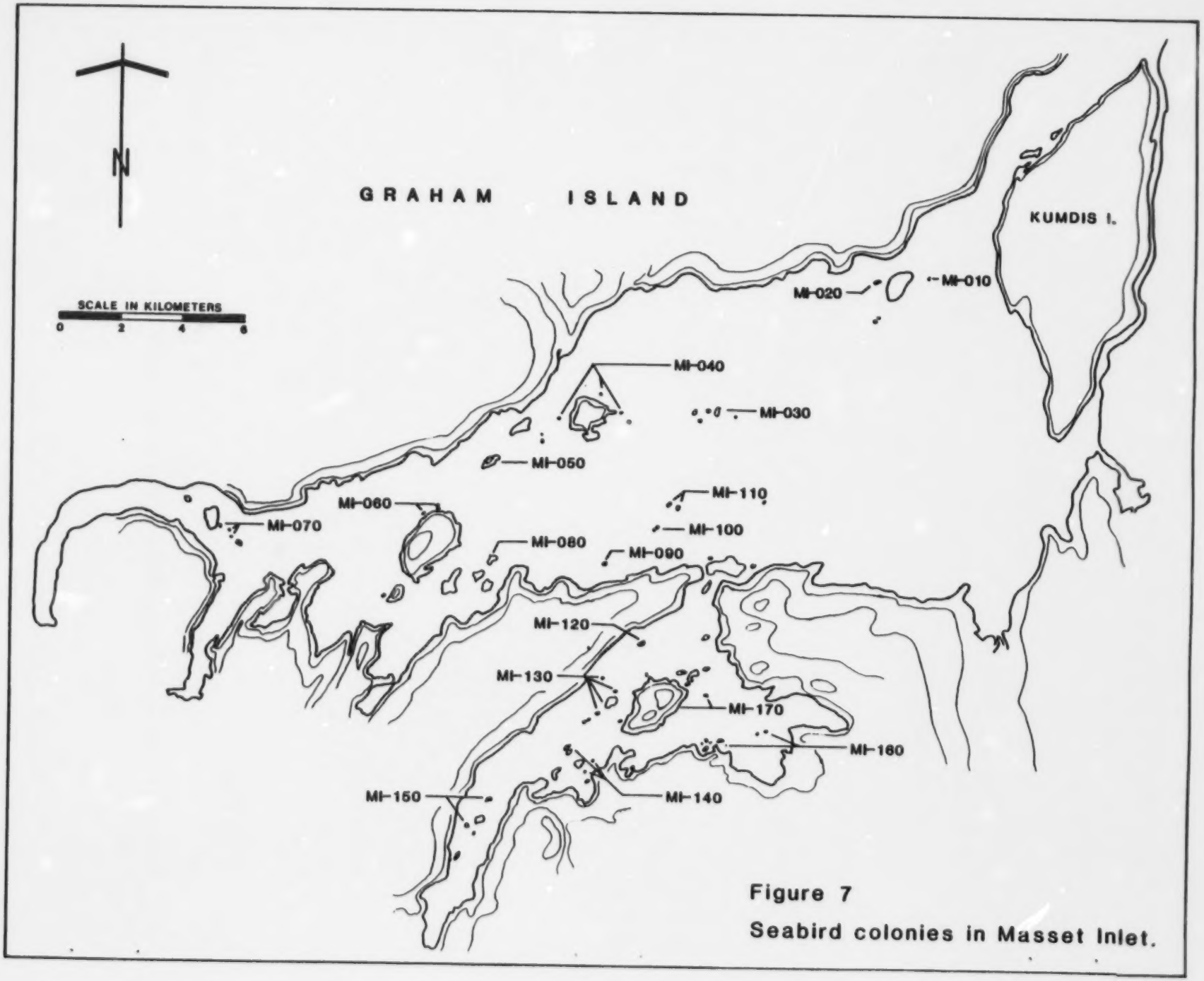

Figure 7

Seabird colonies in Masset Inlet.

3. The NE point of the largest island (34m high). This point has a basaltic columnar bluff on the east side, topped with salal with an edge of moss, Fragaria, Maianthemum and Lupinus.

4. 2m rocks on the N side of the main group. Small rocks with patches of Elymus, Angelica, Achillea and moss.

Nesting species:

BLOY:	Empty	3E	Adults
#2	1		2
#3			2
#4		1	2

The empty nest was a worn bowl in moss with limpet and chiton shells. The nest with 3E was a worn bowl in yarrow with rock chips.

GWGU:	Start	Empty	1E	2E	3E	Total
#1	1	1			8	10
#2	8	2		1	9	20
#3					1	1
#4					1	1
TOTAL	9	3		1	19	32

Nests made of grass and moss.

PIGU:	Empty	1E	2E	Adults
#1	1	1	1	3
#2			3	4
#3				4
TOTAL	1	1	4	11

Nests under logs, rocks and in crevices.

Other sightings:

HADU - 2 female plumage
Hair Seal - 10 with 3 pups

MI-040 "Kwaikans" Rocks 103 F/9

Small rocks around Kwaikans Island.
M., C. & J. Rodway
24/06/86 17:24-18:30
Sunny

Description: Four rocks around Kwaikans Island had nesting gulls or oystercatchers:

1. 2m rock off the east point: rock with patch of Elymus above drift logs.

2. 2m wooded islet off the NE side: salal under cedar and spruce with a fringe of moss.

3. Eastern of two small rocks at the N end of the group of islets off the west side: grass and moss.

4. 2m rock west of #3: Elymus, Angelica and vetch.

Nesting species:

BLOY:	Empty	3E	Total	Adults
#1				2
#2	1		1	2
#3		1	1	2
#4	1	1	2	9
TOTAL	2	2	4	15

Nests of rock chips and shells. One broken eggshell found.

GWGU:	Start	Empty	1E	2E	3E	Total	Adults
#1					1	1	2
#2	1	1	1		1	4	2
#3		1				1	2
TOTAL	1	2	1		2	6	6

Nests of grass. Egg in single egg nest was cold.

PIGU: 2 birds present.

Other sightings:

HADU - nest with 4 eggs and 2 newly hatched young. Female scared off nest. Nest was on ground amongst vegetation. (See BCNRS). 3 male and 3 female on the rock.

Racoon - suspected scats on #2 (white with crab shell)

Deer - 2 on #2

MI-050 McCreight Island 103 F/9

M., C. & J. Rodway
25/06/86 11:50-12:25
Sunny

Description: Nesting occurred on the two tidally connected islets on the east side, and on the adjacent SE point of the main island. These islets and the point have steep rocky sides with tops of open moss under cedar, hemlock and spruce.

Nesting species:

BLOY: 1 nest with 1 egg and 1 large (16cm) young on the northern of the two islets. Nest made of rock chips. 2 adults.

GWGU:	Empty	2E	3E	Total	Adults
N islet		1		1	2
S islet	2			2	2
SE point			1	1	2
TOTAL	2	1	1	4	6

Nests made of moss and grass.

PIGU: 52 adults around S islet and on adjacent SE point. Nesting in crevices and burrows along the edge of the vegetation at the top of the rock bluffs. On the S islet, burrows were located on the shoreward (west) facing side. 10 birds were flushed from nests. 3 burrows were empty and 1 nest under a rock contained 1 egg.

MI-060 "Wathus" Islets 103 F/9

Islets around the perimeter of Wathus Island.
M., C. & J. Rodway
25/06/86 12:40
Sunny

Description: Nesting occurred on the rock at the N end of the 18m islet off the NW corner of Wathus I.

Nesting species:

BLOY: We found 1 empty scrape of rock chips and mussel and barnacle shells. There may have been chicks as the adults were doing "injured wing" distraction displays.

MI-070 "Mutus" Rocks 103 F/10

Unnamed islets around Mutus Island.
M., C. & J. Rodway
25/06/86 13:10-14:10
Sunny

Description: Nesting occurred on 4 small rocks around Mutus Island:

1. Off the NW corner, N of the 33m islet: mossy.
2. Western rock of group of rocks to the SE of Mutus Island.
3. Middle 2m rock of this SE group, NW of most eastern, 33m islet: patches of Elymus and Rumex.
4. South rock of this SE group (W of 33m islet): patches of Elymus and Lupinus.

Nesting species:

BLOY: Three empty scrapes on #1,2 & 4; and 1 nest with 1 egg and 1 young on #3. Nests made of rock chips. The nest on #4 also contained bark chips. Adults were excited around all the empty nests making us suspect the presence of chicks. 10 adults in total.

GWGU: 1 nest with 1 egg on #3. Made of moss. 2 adults.

PIGU: 3 adults around #4.

Other sightings:

CAGO - 1 empty nest with 6 hatched and trampled eggshells on #4
HADU - 30 male
RBME - 1 nest with 9 eggs on #4 (see BCNRS)
NWCR - 6
Hair Seal - 47

MI-080 "Learmonth" Rocks 103 F/9

M., C. & J. Rodway
25/06/86 15:57-16:20
Sunny

Description: Nesting occurred on 3 rocks around the island:

1. off SW corner: bit of grass on top.

2. rock with the light at the N end.

3. rock just E of #2: topped with salal.

Nesting species:

BLOY:	Empty	2E	3Y	Total	Adults
#1	2	1		3	4
#2			1	1	2
TOTAL	2	1	1	4	6

Nests made of rock chips and shells.

GWGU: 1 old nest start on #3. 1 adult.

PIGU: 3 adults on #3. 1 flew out of burrow under roots at the edge of the vegetation.

MI-090 Ross Islet 103 F/9

M., C. & J. Rodway
25/06/86 16:30-16:40
Sunny

Description: Round, rocky knob covered with salal under spruce, cedar, Sitka Alder and hemlock.

Nesting species:

BLOY: 1 pair with 3 chicks hiding in salal branches. Chicks were ~10cm.

PIGU: 2 adults. 1 flew from a burrow under salal.

MI-100 Powell Island 103 F/9

M., C. & J. Rodway
25/06/86 16:50-17:17
Sunny

Description: Narrow, low islet covered with blooming roses plus Angelica, Elymus, Maianthemum, Lupinus and Rumex.

Nesting species:

GWGU:

Start	Empty	3E	Total	Adults
4	1	7	12	17

Nests made of grass.

PIGU:

1E	2E	Adults
1	1	4

Other sightings:

CAGO - 1 empty nest (see BCNRS).
RBME - 2 nests with 9 eggs and 1 nest with 10 eggs. 3 eggs pipping (see BCNRS).
SOSP - 4
Hair Seal - 15

MI-110 Cowley Islands 103 F/9

M., C. & J. Rodway.
25/06/86 17:30-18:45
Sunny

Description: These two islands are covered with salal under a cedar, hemlock and spruce forest. Sitka Alder, roses and vetch occur along the edges.

Nesting species:

BLOY: 2 nests: one with 3 eggs on the west island - nest was a dirt bowl lined with salal leaves; and one nest with 2 eggs on the east island - nest of rock chips on the beach at the E end above the driftwood under overhanging salal. 4 adults.

GWGU:	Start	Empty	1E	2E	3E	4E	3Y	Total
W island				1	3		1	5
E island	7	3		1	2	1		14
TOTAL	7	3		2	5	1	1	19

Nests made of moss, twigs, salal leaves and lichens. They were scattered around the perimeter along the edge of the shore rock under overhanging salal and alder. 19 adults present, perched in trees and on rocks as well as flying. 3 broken eggshells found near empty nests on the east island.

PIGU: 17 adults present, 16 flew out of crevices and burrows on the edge of the salal. 3 nests with 2 eggs each found. Estimate 20 pairs nesting on the west island and 12 pairs on the east island (based on the number of nest sites seen). Total estimated = 32 pairs.

Other sightings:

RBME - nest with 6 eggs (see BCNRS)
RUHB
SOSP
River Otter - scats of fish and feather on the E end of the E island.

MI-120 Ohala Islets 103 F/9

M., C. & J. Rodway.
25/06/86 19:11-19:25
Sunny

Description: Nests on the smaller N islet. Covered with salal under cedar and spruce.

Nesting species:

BLOY: 1 empty nest of twigs, limpets and salal leaves. Nest appeared well used - suspected chicks. 2 excited adults.

GWGU: 1 nest start. 1 adult.

PIGU: 2 flew out of burrows under roots on the edge.

Other sightings:

RBME - 1 female flew out of salal - probably nesting.
Hair Seal - 31

MI-130 Steilta Islets 103 F/9

Including the 23m islet to the N of the Steilta group.

M., C. & J. Rodway.
26/06/86 11:20-12:59
Sunny

Description: Nesting occurred on 6 islets around the Steilta group:

1. 23m (on map) islet N of the Steilta group. This is a low islet, perhaps 5m high, covered with salal under a few hemlock, spruce and cedar.

2. Small islet at the N end of the Steilta islets. Covered with salal under cedar, spruce and hemlock.

3. Bare rock on W side of the main islet.

4. 34m islet at the SW end of the main islet. Salal under cedar, hemlock and spruce, with some pine on the edge.

5. 20m islet SW of #4. Similar vegetation as #4 on the main part of

this islet. There is a small mossy rock connected by the tide to the NE corner.

6. Pair of islets at the SW end of the Steilta group. Mostly salal under hemlock, cedar and spruce, with open, mossy areas under pine occurring on the S and E sides.

Nesting species:

BLOY:	Empty	1E1Y	1Y	Total	Adults
#2		1		1	2
#3			1	1	2
#5	1			1	2
TOTAL	1	1	1	3	6

Nests made of rock chips, plus limpet shells in one nest. Two nests on rock, one on worn dirt bowl in yarrow patch.

GWGU: 1 nest with 4 eggs on islet #2. An additional egg lay just below the nest. Nest made of moss and twigs. 2 adults.

PIGU: Nesting in burrows and crevices around the edges of the salal on islets 1, 2, 4, 5 & 6. Burrows were located as far as 3m from the edge of the vegetation. Nine adults were flushed from burrows. One burrow explored contained 2 eggs. The following numbers of adults were counted around the islets:

#1 - 62
#2 - 11
#4 - 21
#5 - 22
#6 - 15

TOTAL 131

Other sightings:

CAGO - No birds seen, but there were droppings all over the small mossy rock at the NE end of islet 5.
Hair Seal - 1 very young pup on islet 2.

MI-140 Seegay Islets 103 F/9

Including unnamed islets and rocks SE of the Seegays.

M., C. & J. Rodway.
26/06/86 15:30-16:00
Sunny

Description: Nesting occurred on 3 islets of this group:

1. 17m islet on the E side of the Seegay Islets. Low islet with mossy ground under spruce, hemlock and cedar.

2. 2m rock SE of the Seegay Islets (NE of 75m islet). Bare rock with patches of moss, Fragaria, Castilleja, Sedum and vetch.

3. 3m rock SW of #2 (SE of 75m islet). Mossy rock with a few small hemlock, spruce and cedar.

Nesting species:

BLOY:	Empty	1E	Total	Adults
#2	3	1	4	4
#3	3		3	4
TOTAL	6	1	7	8

Nests made of rock chips with some shell. Adults on #3 flew away when we landed.

PIGU: 1 burrow under roots on the edge of the vegetation on the west side of #1. Burrow was empty with eggshell fragments in the tunnel. 2 adults.

Other sightings:

RBME - 1 nest with 9 eggs on #2 (see BCNRS).

MI-150 Modeets Islands 103 F/9

M., C. & J. Rodway.
26/06/86 14:50-15:20
Sunny

Description: Nesting occurred on 3 islets in this group:

1. 15m islet on west side of group. Small narrow islet covered with moss and Elymus under crabapple and some spruce and hemlock.

2. 41m islet at S end of group. Forested with under story of salal; rocky points.

3. 55m islet at N end of group. Habitat same as #2.

Nesting species:

BLOY:	Empty	1E	Total	Adults
#1		1	1	1
#2	1		1	2
TOTAL	1	1	2	3

Nests made of rock chips and limpet and clam shells on worn dirt bowls in yarrow and moss. We suspected chicks on islet 2.

GWGU: 1 nest with 3 eggs on islet 1. Nest made of moss. 1 adult.

PIGU: 1 bird around #1 and 1 bird around #3.

MI-160 Mamin Islets 103 F/9

Including unnamed group of islands west of Mamin Bay.

M., C. & J. Rodway.
26/06/86 16:20-16:45
Sunny

Description: Nesting occurred on the two Mamin Islets and on two islets in the group west of Mamin Bay:

1. East Mamin Islet. Salal under spruce, hemlock and cedar; rocky shoreline.

2. West Mamin Islet. Habitat same as #1.

3. Bare rock at east end of group west of Mamin Bay.

4. Islet at west end of group west of Mamin Bay. Rocky knobs with moss and a few crabapple.

Nesting species:

BLOY:	1Y	Total	Adults
#1		1*	2
#3	1	1	2
#4	1**	1	2
TOTAL	2	3	6

* We did not check this nest due to the presence of 20+ NWCR, but adult was sitting on the nest.
** Young were not found, but there was a recently hatched eggshell in the nest.

Nests made of rock chips and clam shells.

PIGU: 1 adult flew out of a burrow at the edge of the salal on the east side of islet 2. We suspected more nesting.

MI-170 Harrison Islands 103 F/9

M., C. & J. Rodway.
26/06/86 16:50-17:30
Sunny

Description: Nesting observed on two islets in this group:

1. 15m islet east of the large island. Covered with salal under cedar, crabapple, pine and spruce. Roses were growing around the edges.

2. 26m islet off the west side of the large island. Salal under cedar, hemlock and spruce, with some moss on the NW side.

Nesting species:

BLOY: 1 empty nest on islet 1; made of rock chips, twigs and bark. We suspected young but none were found. 2 adults.

GWGU: 1 nest with 1 egg and 1 nest with 2 hatched eggshells (chicks were not found) on islet 1. Nests made of moss, grass and twigs, located under salal and spruce branches 1m and 2m from the edge of the vegetation. The gulls had worn runways from the shore rock to their nests. 4 adults.

PIGU: Nesting in burrows and crevices around the edge of the salal on islets 1 and 2. We counted 16 adults around islet 1, and 13 around islet 2. One bird was flushed out of a burrow.

Other sightings:

RBME - scared out of nest sites in the salal. Nests were not found, but 13 depredated eggshell were found in the interior and on the perimeter of the island. Nest sites were suspected as far as 10m from the edge of the vegetation. Pathways had been worn through the salal to these sites. We suspected 10+ nests.

NWCR - 10+

SOSP

NORTH COAST GRAHAM ISLAND (Fig. 8)

NG-020 "Westacott" Rock — 103 K/1

M., C. & J. Rodway.
29/06/86 12:00
Cloudy
We only boated close by the rock.

Description: Small, grassy rock.

No birds were visible.

Mazarredo Islands — 103 K/2

M., C. & J. Rodway.
29/06/86 13:00
Cloudy

No birds were visible from the boat.

NG-030 "Cape Naden" Rocks — 103 K/2

Including: 1. 4m rock connected to Cape Naden;
2. 9m rock 1.2km NW of Cape Naden;
3. pair of 2m rocks 4km NW of Cape Naden.

M., C. & J. Rodway.
29/06/86 13:05-16:03
Cloudy

Description: These rocks are mostly bare with grass on the highest portion of the 9m rock, and a patch of Elymus in the low middle area of the 2m rocks. Rocks #2 & #3 have extensive nesting areas on the bare rock.

Nesting species:

BLOY:	Empty	2E	3E	1E1Y	Total	Adults
#1	3*				3	1
#2	3*	1		1**	5	6
#3	4*	2	1		7	
TOTAL	10	3	1	1	15	

* Chicks suspected at 5 of these nests.
** Egg pipping.

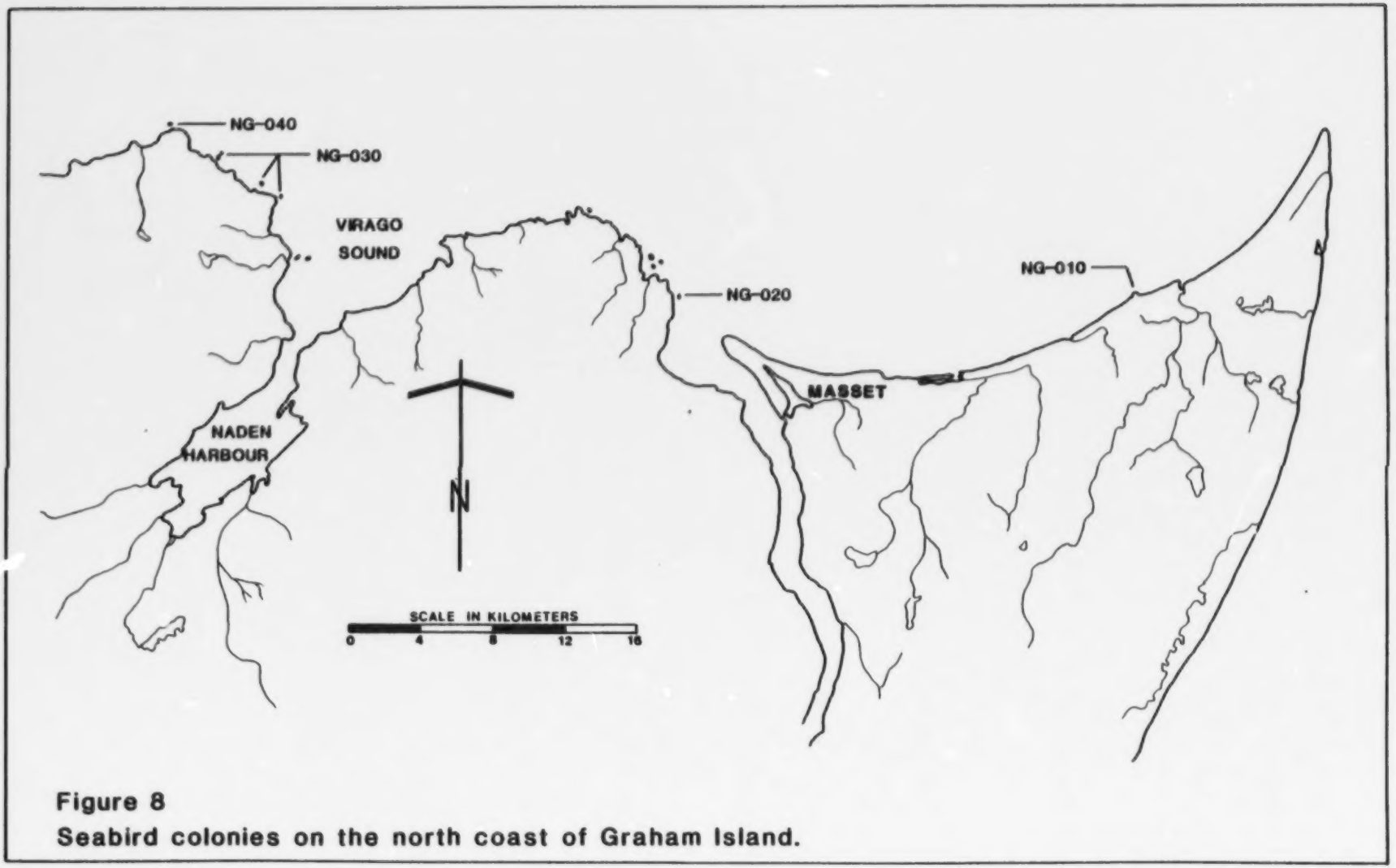

Figure 8
Seabird colonies on the north coast of Graham Island.

Nests made of rock chips and mussel, chiton, limpet and crab shell. We found 2 broken eggshells on rock #1, and 1 on rock #3.

GWGU:	St	Emp	1E	2E	3E	2E1Y	1E2Y	1E1Y	1Y	2Y	3Y	Total
#2	3	2	1	2	13	2				3	6	32
#3	16	23	6	6	13		2	2	2	3	5	78
TOTAL	19	25	7	8	26	2	2	2	2	6	11	110

Most nests made of grass, with seaweed used in some of the nests lower on the rocks. Nests with less than full clutches were mostly on these lower, peripheral rocks. We found 4 depredated eggs on rock #2, and 12 on rock #3. We also found 2 adult feather piles on rock #3. Sandlance (7-10cm; 10 found) and herring (30cm; 2 found) were being fed to the chicks.

PIGU:	Empty	1E	2E	Adults
#2		2	12	75
#3	1		2	67
TOTAL	1	2	14	142

Nests located mostly in crevices and under rocks, but 2 nests on rock #2 were in small grassy depressions in the Elymus against a rock (not hidden except by tall grass). The empty nest had a depredated egg in it; 2 other depredated eggs found on rock #2. One nest on rock #2 had 2 fresh cold eggs in the nest plus 2 older eggs wedged just below the nest.

Other sightings:

PECO - 62 non-breeding and immature
HADU - 4 male
GWGU - 450 imm
HEGU - 50 imm

NG-040 "Klashwun" Rocks 103 K/2

Group of three rocks just off Klashwun Point.
M., C. & J. Rodway
29/06/86 16:25-16:50
Cloudy

Description: Nesting occurred on the 6m rock at the SE corner of this group. There were no birds on the N and W rocks. Mostly bare rock with patches of grass and sedges.

Nesting species:

BLOY: 1 empty (suspect chicks) and 1 nest with 1 egg. Nests made of rock chips. 2 adults.

GWGU: 1 empty, 1 nest with 2 eggs and 1 nest with 3 eggs. Nests of grass. 3 adults.

PIGU:	Emp	1E	2E	2Y	Adults
	2	1	3	1	33

Nests mostly in rock crevices and under rocks, but one nest with 1 egg was located in the middle of a patch of sedges in the open. The 2 young were about half adult size, downy with pins and wing feathers emerging.

Other sightings:

HADU - 25 male

SURVEY RESULTS - SPECIES SUMMARIES

PELAGIC CORMORANTS

Table 2 summarizes the records obtained on this survey. Five colonies that were present in 1977 were not adequately surveyed in 1986: four on the west coast of Graham Island: Cox Island (9 pairs in 1977, none nesting in 1981); caves east of Barry Island (1 pair in 1977, not checked in 1986); Hippa Island (15 pairs in 1977, inaccessible in 1986); and Stiu Rock (2 pairs in 1977, inaccessible in 1986); and one in Englefield Bay, on the west coast of Moresby Island: "Inskip" Cave (5 pairs in 1977, not checked in 1986).

Table 2. Pelagic Cormorant nests counted during the 1986 census.

		DATE	NESTS
WEST COAST GRAHAM ISLAND			
WG-010	Langara Island	01/07/86	52
WG-040	"Lepas Bay"	03/07/86	26
WG-120	Tian Islets	07/07/86	98
WG-240	Sadler Island	08/07/86	16
WEST COAST MORESBY ISLAND			
WM-280	Anthony Island	17/06/86	7
WM-310	St. James I.	10/06/86	6
EAST COAST MORESBY ISLAND			
EM-010	Kunghit-E coast	05/06/86	22
EM-470	Ramsay Island	20/06/86	14S
EM-580	Lyell Island	20/06/86	1
EM-690	Reef Island	31/05/86	11*

TOTALS	
WEST COAST GRAHAM ISLAND	192
WEST COAST MORESBY ISLAND	13
EAST COAST MORESBY ISLAND	48
SKIDEGATE INLET	0
MASSET INLET	0
NORTH COAST GRAHAM ISLAND	0
TOTAL QUEEN CHARLOTTE ISLANDS	253

S: Suspected from breeding adults observed flying into crevices. Nests were not visible.
*: Data from A.J. Gaston.

Table 3 compares the regional totals from 1977 and 1986. The results indicate an overall decline in both the number of colonies and the total nesting population. The decline appears to have occurred on the west coast of Moresby Island. On the west coast of Graham Island, numbers increased slightly due to the larger numbers nesting on Tian Islets, and numbers on the east coast of Moresby Island are similar in the two years. However, Summers (1974) recorded 181 pairs nesting at 5 sites on the east coast of Morseby Island in 1971. Vertical Point and Reef Island were not occupied in 1977, and most colonies had fewer nests than in 1971. Ten colonies reported in 1977 were unoccupied in 1986: three on the west coast of Graham Island ("Sialun" Rock, Brock Island and Marble Island); five on the west coast of Moresby Island (Lihou Island, Bone Point, Flatrock Island, west coast of Kunghit Island, and Kerouard Islands); and two on the east coast of Moresby Island (Howay Island and Murchison Island). Cox Island on the west coast of Graham Island was unoccupied in 1981, and is listed that way for 1986. We found one new nesting site in 1986 (in a sea-arch on Kunghit Island on the north side of Luxana Bay).

Table 3. Comparison of Pelagic Cormorant nesting populations found in the Queen Charlotte Islands in 1977 and 1986.

	Number of sites		Number of nests	
	1977	1986	1977	1986
WEST COAST GRAHAM ISLAND	12	4(8)	191	192(214)
WEST COAST MORESBY ISLAND	8*	2(3)	102*	13(18)
EAST COAST MORESBY ISLAND	3	4	48	48
SKIDEGATE INLET	0	0	0	0
MASSET INLET	0	0	0	0
NORTH COAST GRAHAM ISLAND	0	0	0	0
TOTAL QUEEN CHARLOTTE ISLANDS	23	10(15)	341	253(280)

(): Numbers in parentheses include possible colonies that were not adequately checked in 1986. Population figures are added from the last dependable count (data from Rodway et al in prep).
*: including west coast of Kunghit Island.
1977 data from Campbell and Garrioch 1979 with aumendments from the BCNRS.

BLACK OYSTERCATCHER

Results from this survey are summarized in Table 4.

Table 4. Black Oystercatcher nests counted during 1986 census.

	DATE	T-NEST	EMP	1E	2E	3E	1E1Y	1Y	2Y	3Y	ADU
WEST COAST GRAHAM ISLAND											
WG-010 Langara Island	01/07/86	1			1						2
WG-070 "Beresford" It.	06/07/86	1				1					2
WG-080 "Grassy" Islet	06/07/86	16	12	2	1				1		
WG-100 Frederick I.	07/07/86	3	3								2
WG-120 Tian Islets	07/07/86	18	10	3	1			3	1		
WG-130 Solide Islands	07/07/86	0									2
WG-150 Pip Islets	07/07/86	2	2								10
WG-190 "Kiokathli" Its.	07/07/86	0									2
WG-220 Selvesen I.	09/07/86	1	1								2
WG-230 Hippa Island	08/07/86	3	3								5
WG-240 Sadler Island	08/07/86	10	7		1	2					53
WEST COAST MORESBY ISLAND											
WM-020 Saunders I.	29/05/86	4		2	2						10
WM-070 Instructor I.	18/05/86	1				1					2
WM-080 Lihou Island	07/06/86	0									2
WM-090 Bone Point	15/05/86	0									2
WM-110 Rogers Island	15/05/86	1	1								2
WM-260 "Louscoone" Rks.	17/06/86	3		2	1						9
WM-270 Adam Rocks	17/06/86	3			2			1			12
WM-280 Anthony Island	17/06/86	11	4	2	1	2				2	17
WM-290 Flatrock I.	16/06/86	2			1	1					4
WM-305 Kunghit-W coast	16/06/86	4		1	2						
EAST COAST MORESBY ISLAND											
EM-010 Kunghit-E coast	05/06/86	3	2					1			6
EM-020 Marshall I.	06/06/86	0									5
EM-030 Gull Islet	18/06/86	2	1		1						4
EM-040 Rainy Islands	18/06/86	3	1		1			1			6
EM-060 Haydon Rock	18/06/86	1			1						2
EM-080 Charles Island	06/06/86										8
EM-120 Rankine Is.	18/06/86	5	1	1	1			2			
EM-130 Marion Rock	19/06/86	2	1	1							4
EM-140 Nest Islets	19/06/86	4	1		3						8
EM-150 Inner Low Rock	19/06/86	1			1						4
EM-160 Joyce Rocks	19/06/86	1		1							
EM-190 Green Rock	19/06/86	3			2	1					6
EM-210 Bush Rock	19/06/86	0									2
EM-220 Bolkus Is.	19/06/86	2	2								2
EM-230 Swan Islands	19/06/86	4		1	3						
EM-240 "Pelican" Rk.	19/06/86	2			2						4
EM-250 Slug Islet	19/06/86	2	2								4
EM-260 Rock Islet	19/06/86	4	2	1					1		8
EM-270 Skincuttle I.	19/06/86	1			1						2
EM-320 "Island Bay" Gp.	19/06/86	3	3								2

Table 4. cont'd

	DATE	T-NEST	EMP	1E	2E	3E	1E1Y	1Y	2Y	3Y	ADU
EM-330 Kat Island	19/06/86	9	3	1	3	2					
EM-350 Wanderer I.	19/06/86	0									2
EM-360 Sels Islet	19/06/86	5	3	1				1			4
EM-370 Park Island	17/06/86	0									2
EM-430 Marco Rock	19/06/86	5	3		2						6
EM-450 Hoskins Its.	19/06/86	1							1		4
EM-460 Tatsung Rock	20/06/86	4	1		3						8
EM-470 Ramsay Island	20/06/86	1							1		4
EM-480 Ramsay Rocks	19/06/86	0									5
EM-530 Murchison I.	20/06/86	2	1		1						8
EM-540 Agglomerate I.	20/06/86	2			1			1			4
EM-550 Kawas Islands	20/06/86	3	1	1		1					
EM-560 Tar Islands	20/06/86	6	4		1					1	
EM-620 Kul Rocks	20/06/86	0									2
EM-650 Lost Islands	20/06/86	3	1	1	1						
EM-680 Kingsway Rock	20/06/86	1				1					4
EM-700 South Low I.	21/06/86	0									2
EM-730 Low Island	21/06/86	1	1								3
EM-790 Cumshewa I.	21/06/86	1	1								2
SKIDEGATE INLET (K. Moore, M. Morris, D. Davies)											
SI-020 Gillat Island	*	3	2			1					
SI-030 Torrens Island	*	1			1						
SI-060 "Kwuna" Rocks	*	3	2			1					
SI-070 "Alliford" Its.	*	8	1		5	2					
SI-080 Bush Island	*	4	2	2							
SI-090 Lillihorn I.	*	0									6
SI-100 Sandilands Rks.	*	10	8			2					
SI-120 Maple Island	*	0									4
SI-150 Robertson I.	*	0									4
SI-170 Balch Islands	*	0									2
SI-190 Angle Island	*	4	4								
SI-200 Claudet Rks.	*	5	3		2						
SI-220 "Dyer Pt" Rks.	*	3	2		1						
SI-230 Meyer Island	*	0									2
SI-250 "Slatechuck" Rk.	*	2	2								4
SI-260 Hallet Island	*	3			2	1					
SI-280 Sandstone Is.	*	5	5								4
SI-290 Berry Islands	*	3	2		1						
MASSET INLET											
MI-010 Sloop Islet	24/06/86	1				1					6
MI-030 Dawson Islands	24/06/86	2	1			1					6
MI-040 "Kwaikans" Rks.	24/06/86	4	2			2					15
MI-050 McCreight I.	25/06/86	1					1				2
MI-060 Wathus Island	25/06/86	1	1								2
MI-070 "Mutus" Rocks	25/06/86	4	3				1				10
MI-080 Learmonth I.	25/06/86	4	2		1					1	6
MI-090 Ross Islet	25/06/86	1								1	2
MI-110 Cowley Islands	25/06/86	2			1	1					4

Table 4. cont'd

	DATE	T-NEST	EMP	1E	2E	3E	1E1Y	1Y	2Y	3Y	ADU
MI-120 Ohala Islets	25/06/86	1	1								2
MI-130 Steilta Islets	26/06/86	3	1				1	1			6
MI-140 Seegay Islets	26/06/86	7	6	1							8
MI-150 Modeets Is.	26/06/86	2	1	1							3
MI-160 Mamin Islets	26/06/86	3						2			6
MI-170 Harrison Is.	26/06/86	1	1								2
NORTH COAST GRAHAM ISLAND											
NG-030 "Cape Naden" Rks.	29/06/86	15	10		3	1	1				
NG-040 "Klashwun" Rks.	29/06/86	2	1	1							2

TOTALS	T-NEST	EMP	1E	2E	3E	1E1Y	1Y	2Y	3Y	ADU
WEST COAST GRAHAM ISLAND	55	38	5	4	3	0	3	2	0	80
WEST COAST MORESBY ISLAND	29	5	7	9	4	0	1	0	2	60
EAST COAST MORESBY ISLAND	87	35	9	28	5	0	6	3	1	137
SKIDEGATE INLET	54	33	2	12	7	0	0	0	0	26
MASSET INLET	37	19	2	2	5	3	3	0	2	80
NORTH COAST GRAHAM ISLAND	17	11	1	3	1	1	0	0	0	2
TOTAL QUEEN CHARLOTTES	279	141	26	58	25	4	13	5	5	385

*: census conducted between 22 June and 1 July 1986.

Table 5 compares the regional totals from 1977 and 1986.

Table 5. Comparison of the number of Black Oystercatcher nests found in the Queen Charlotte Islands in 1977 and 1986.

	Number of sites		Number of nests	
	1977	1986	1977	1986
WEST COAST GRAHAM ISLAND	22	9(24)	89	55(90)
WEST COAST MORESBY ISLAND	16	8(16)	46	29(40)
EAST COAST MORESBY ISLAND	44	31(62)	82	87(137)
SKIDEGATE INLET	13	18	36	63*
MASSET INLET	12	15	20	37
NORTH COAST GRAHAM ISLAND	3	2	5	17
TOTAL QUEEN CHARLOTTE IS.	110	83(137)	278	288(384)

(): Numbers in parentheses include current totals from all colonies (data from Rodway et al in prep).
*: including 9 suspected nests.
1977 data from BCNRS.

The figures in Table 5 suggest an increase in oystercatcher nesting populations in the more sheltered waters of Masset Inlet, Skidegate Inlet and the east coast of Moresby Island. A greater proportion of empty nests, that may have had associated young, were recorded in 1986, and may account for much of the apparent increase (see Rodway et al in prep).

GLAUCOUS-WINGED GULL

The reults from this survey are summarized in Table 6. The data has not been statistically analysed, but it indicates an earlier hatch on the west coast of the Charlottes than on the east coast and in the inlets. I suspect this is related to the timing of herring runs on the west and east sides. Table 7 compares nesting populations from 1977 and 1986.

Table 7. Comparison of Glaucous-winged Gull nesting populations in the Queen Charlotte Islands in 1977 and 1986.

	Number of sites		Number of nests	
	1977	1986	1977	1986
WEST COAST GRAHAM ISLAND	16	16(19)	588	689(712)
WEST COAST MORESBY ISLAND	14	13(19)	661	769(842)*
EAST COAST MORESBY ISLAND	33	30(33)	612	832(840)
SKIDEGATE INLET	11	13	51	116
MASSET INLET	9	11	43	81
NORTH COAST GRAHAM ISLAND	2	2	43	113
TOTAL QUEEN CHARLOTTE ISLANDS	85	85(97)	1998	2600(2704)

(): Numbers in parentheses include possible colonies that were not adequately checked in 1986. Population figures are added from the last dependable count (data from Rodway et al in prep).
*: including west coast of Kunghit Island.
1977 data from Campbell and Garrioch 1979 with ammendments from the BCNRS.

Nesting populations have increased in all areas of the Charlottes.

Table 6. Glaucous-winged Gull nests counted during the 1986 census.

	DATE	T-NEST	STA	EMP	1E	2E	3E	4E	2E1Y	1E2Y	1E1Y	1Y	2Y	3Y	T-E	T-Y	ADU
WEST COAST GRAHAM ISLAND																	
WG-010 Langara Island	01/07/86	73	3	9	1	9	39	0	0	1	0	0	6	3	137	23	
WG-020 Cox Island	29/06/86	2e															4
WG-050 "Lepas" Islet	03/07/86	4e			0	0	1	0	0	0	0	0	0	0	3	0	7
WG-080 "Grassy" Islet	06/07/86	12		2	2	2	4	0	0	0	0	0	1	1	18	5	
WG-100 Frederick I.	07/07/86	5	3	1	0	0	0	0	1	0	0	0	0	0	2	1	
WG-120 Tian Islets	07/07/86	289	11	26	13	15	109	0	2	11	1	47	25	29	386	209	
WG-130 Solide Islands	07/07/86	2e															4
WG-150 Pip Islets	07/07/86	10		4	0	0	0	0	0	0	0	3	2	1	0	10	12
WG-190 "Kiokathli" Its.	07/07/86	1e															2
WG-200 "Hosu" Islets	07/07/86	2e															3
WG-220 Selvesen I.	09/07/86	5		1	1	0	1	0	0	0	0	0	1	1	4	5	10
WG-230 Hippa Island	08/07/86	68	1	5	3	3	16	0	0	1	2	23	10	4	60	59	
WG-240 Sadler Island	08/07/86	114	4	15	11	9	22	0	3	3	8	18	11	10	112	87	
WG-310 Stiu Rock	11/07/86	40e															80
WG-320 Gagi Rock	11/07/86	43e															85
WG-330 Marble Island	11/07/86	19e															37
WEST COAST MORESBY ISLAND																	
WM-020 Saunders I.	29/05/86	7e	1														14
WM-090 Bone Point	15/05/86	18e															35
WM-130 Moresby Islets	15/05/86	1	1														
WM-230 "Victoria" Rk	13/06/86	19e															38
WM-240 "Keyhole" Rock	13/06/86	11e															22
WM-250 "Mclean Fraser"	13/06/86	5e															10
WM-270 Adam Rocks	17/06/86	48	4	4	2	6	32	0	0	0	0	0	0	0	110	0	
WM-280 Anthony Island	17/06/86	352	11	19	9	32	252	4	0	4	1	0	0	0	850	9	
WM-290 Flatrock I.	16/06/86	145	5	3	5	10	114	4	0	1	0	0	1	2	384	10	
WM-300 Gordon Islands	16/06/86	1	1														2
WM-305 Kunghit-W coast	16/06/86	11		2	1	2	6	0	0	0	0	0	0	0	23	0	46
WM-310 St. James I.	10/06/86	76e															152
WM-320 Kerouard Is.	10/06/86	75e															151
EAST COAST MORESBY ISLAND																	
EM-010 Kunghit-E coast	05/06/86	18e		1	1	0	2	0	0	0	0	0	0	0	7	0	42
EM-030 Gull Islet	18/06/86	1e															2
EM-040 Rainy Islands	18/06/86	26	1	2	2	2	19	0	0	0	0	0	0	0	63	0	

Table 6. Glaucous-winged Gull nests counted during the 1986 census.

Table 6. cont'd

		DATE	T-NEST	STA	EMP	1E	2E	3E	4E	2E1Y	1E2Y	1E1Y	1Y	2Y	3Y	T-E	T-Y	ADU
EM-060	Haydon Rock	18/06/86	1			1	0	0	0	0	0	0	0	0	0	1	0	2
EM-090	Garcin Rocks	18/06/86	102	2	7	8	12	72	1	0	0	0	0	0	0	252	0	
EM-120	Rankine Is.	18/06/86	43		1	0	2	40	0	0	0	0	0	0	0	124	0	
EM-130	Marion Rock	19/06/86	1		0	0	1	0	0	0	0	0	0	0	0	2	0	1
EM-160	Joyce Rocks	19/06/86	197	5	7	25	50	110	0	0	0	0	0	0	0	455	0	
EM-190	Green Rock	19/06/86	3			0	0	3	0	0	0	0	0	0	0	9	0	
EM-220	Bolkus Is.	19/06/86	1			0	0	1	0	0	0	0	0	0	0	3	0	1
EM-230	Swan Islands	19/06/86	1			1	0	0	0	0	0	0	0	0	0	1	0	
EM-240	"Pelican" Rk.	19/06/86	1		1	0	0	0	0	0	0	0	0	0	0	0	0	2
EM-250	Slug Islet	19/06/86	48	5	8	0	3	32	0	0	0	0	0	0	0	102	0	
EM-260	Rock Islet	19/06/86	1			0	0	1	0	0	0	0	0	0	0	3	0	2
EM-310	Howay Island	19/06/86	10e		1	0	0	3	0	0	0	0	0	0	0	9	0	20
EM-330	Kat Island	19/06/86	6		1	0	0	5	0	0	0	0	0	0	0	15	0	5
EM-430	Marco Rock	19/06/86	18			0	1	17	0	0	0	0	0	0	0	53	0	
EM-460	Tatsung Rock	20/06/86	11		4	0	5	2	0	0	0	0	0	0	0	16	0	24
EM-470	Ramsay Island	20/06/86	16			0	1	8	0	0	0	0	0	0	0	26	0	32
EM-480	Ramsay Rocks	19/06/86	5			0	0	5	0	0	0	0	0	0	0	15	0	15
EM-530	Murchison I.	20/06/86	27	11	6	3	1	3	0	0	0	0	0	0	0	14	0	
EM-540	Agglomerate I.	20/06/86	2		1	0	0	1	0	0	0	0	0	0	0	3	0	
EM-550	Kawas Islands	20/06/86	11	2		1	2	6	0	0	0	0	0	0	0	23	0	
EM-560	Tar Islands	20/06/86	32	2		0	4	22	0	0	0	0	0	0	0	74	0	
EM-650	Lost Islands	20/06/86	75	13	9	5	7	35	0	1	1	0	0	3	1	127	12	
EM-680	Kingsway Rock	20/06/86	43	5	7	3	3	25	0	0	0	0	0	0	0	84	0	
EM-690	Reef Island	20/06/86	7	1	1	0	5	0	0	0	0	0	0	0	0	10	0	
EM-730	Low Island	21/06/86	39	14	14	9	1	1	0	0	0	0	0	0	0	14	0	
EM-740	Skedans Is.	21/06/86	49	6	13	1	13	16	0	0	0	0	0	0	0	75	0	
EM-790	Cumshewa I.	21/06/86	37	3	8	5	8	13	0	0	0	0	0	0	0	60	0	
SKIDEGATE INLET (K. Moore, M. Morris, D. Davies)																		
SI-020	Gillat Island	*	40	10	14	4	6	6	0	0	0	0	0	0	0	34	0	
SI-050	Flowery Rks.	*	21		2	3	6	10	0	0	0	0	0	0	0	45	0	
SI-060	"Kwuna" Rocks	*	12		3	3	2	4	0	0	0	0	0	0	0	19	0	
SI-070	"Alliford" Its.	*	2			0	0	2	0	0	0	0	0	0	0	6	0	
SI-080	Bush Island	*	12		1	2	0	9	0	0	0	0	0	0	0	29	0	
SI-090	Lillihorn I.	*	10			0	0	8	0	0	0	0	0	0	0	24	0	
SI-120	Maple Island	*	7			0	0	7	0	0	0	0	0	0	0	21	0	

Table 6. cont'd

	DATE	T-NEST	STA	EMP	1E	2E	3E	4E	2E1Y	1E2Y	1E1Y	1Y	2Y	3Y	T-E	T-Y	ADU
SI-170 Balch Islands	*	4		1	1	0	2	0	0	0	0	0	0	0	7	0	
SI-190 Angle Island	*	1			0	1	0	0	0	0	0	0	0	0	2	0	
SI-210 Burnt Rocks	*	2e															4
SI-220 "Dyer Pt" Rks.	*	2			0	1	1	0	0	0	0	0	0	0	5	0	
SI-230 Meyer Island	*	2e			0	0	1	0	0	0	0	0	0	0	3	0	4
SI-260 Hallet Island	*	1					1								3		
MASSET INLET																	
MI-010 Sloop Islet	24/06/86	2		2	0	0	0	0	0	0	0	0	0	0	0	0	2
MI-030 Dawson Islands	24/06/86	32	9	3	0	1	19	0	0	0	0	0	0	0	59	0	
MI-040 "Kwaikans" Rks.	24/06/86	6	1	2	1	0	2	0	0	0	0	0	0	0	7	0	6
MI-050 McCreight I.	25/06/86	4		2	0	1	1	0	0	0	0	0	0	0	5	0	6
MI-070 "Mutus" Rocks	25/06/86	1			1	0	0	0	0	0	0	0	0	0	1	0	2
MI-100 Powell Island	25/06/86	12	4	1	0	0	7	0	0	0	0	0	0	0	21	0	17
MI-110 Cowley Islands	25/06/86	19	7	3	0	2	5	1	0	0	0	0	0	1	23	3	19
MI-120 Ohala Islets	25/06/86	1	1		0	0	0	0	0	0	0	0	0	0	0	0	1
MI-130 Steilta Islets	26/06/86	1			0	0	0	1	0	0	0	0	0	0	4	0	2
MI-150 Modeets Is.	26/06/86	1			0	0	1	0	0	0	0	0	0	0	3	0	1
MI-170 Harrison Is.	26/06/86	2			1	0	0	0	0	0	0	0	1	0	1	2	4
NORTH COAST GRAHAM ISLAND																	
NG-030 "Cape Naden" Rks.	29/06/86	110	19	25	7	8	26	0	2	2	2	2	6	11	109	55	
NG-040 "Klashwun" Rks.	29/06/86	3		1	0	1	1	0	0	0	0	0	0	0	5	0	3

TOTALS	T-NEST	STA	EMP	1E	2E	3E	4E	2E1Y	1E2Y	1E1Y	1Y	2Y	3Y	T-E	T-Y
WEST COAST GRAHAM ISLAND	689	22	63	31	38	192	0	6	16	11	91	56	49	722	399
WEST COAST MORESBY ISLAND	769	23	28	17	50	404	8	0	5	1	0	1	2	1367	19
EAST COAST MORESBY ISLAND	832	70	92	65	121	442	1	1	1	0	0	3	1	1742	12
SKIDEGATE INLET	116	10	21	13	16	51	0	0	0	0	0	0	0	198	0
MASSET INLET	81	22	13	3	4	35	2	0	0	0	0	1	1	124	5
NORTH COAST GRAHAM ISLAND	113	19	26	7	9	27	0	2	2	2	2	6	11	114	55
TOTAL QUEEN CHARLOTTE IS.	2600	166	243	136	238	1151	11	9	24	14	93	67	64	4267	490

e: total nesting pairs estimated from adults standing on territory.
*: censused between 22 June and 1 July 1986.

Table 6. Cont'd

PIGEON GUILLEMOT

Table 8 summarizes the Pigeon Guillemot records from the 1986 season. Only nests found and the numbers of adults seen are presented. No attempt was made to estimate the number of nesting pairs. As was noted in the introduction, the number of birds present around a colony is dependant on the time of day and the period in the breeding season when the observations are made.

Table 8. Numbers of adult Pigeon Guillemots observed and nests found during the 1986 census.

	DATE	1E	2E	3E	1Y	2Y	ADULT
WEST COAST GRAHAM ISLAND							
WG-010 Langara Island	01/07/86					1	3
WG-050 "Lepas" Islet	03/07/86		2				173
WG-080 "Grassy" Islet	06/07/86						69
WG-100 Frederick I.	07/07/86		1		1	1	73
WG-120 Tian Islets	07/07/86	1	4		1	1	75
WG-130 Solide Islands	07/07/86						1
WG-190 "Kiokathli" Its.	07/07/86						18
WG-240 Sadler Island	08/07/86				1		28
WG-320 Gagi Rock	11/07/86						2
WEST COAST MORESBY ISLAND							
WM-020 Saunders I.	29/05/86						14
WM-040 Willie Island	15/05/86						25
WM-070 Instructor I.	18/05/86						17
WM-080 Lihou Island	07/06/86						80
WM-090 Bone Point	15/05/86						29
WM-100 Luxmore Island	15/05/86						2
WM-110 Rogers Island	15/05/86						5
WM-130 Moresby Islets	15/05/86						1
WM-230 "Victoria" Rk.	13/06/86						3
WM-250 "Mclean Fraser"	13/06/86						2
WM-270 Adam Rocks	17/06/86						20
WM-280 Anthony Island	17/06/86	1	3				40
WM-290 Flatrock I.	16/06/86	2	2				24
WM-300 Gordon Islands	16/06/86						26
WM-305 Kunghit-W coast	16/06/86						34
WM-310 St. James I.	10/06/86						16
WM-320 Kerouard Is.	10/06/86						68
EAST COAST MORESBY ISLAND							
EM-010 Kunghit-E coast	05/06/86						121
EM-020 Marshall I.	06/06/86						27
EM-030 Gull Islet	18/06/86						8
EM-040 Rainy Islands	18/06/86						20
EM-070 Charles I.	06/06/86						8
EM-080 Annette I.	06/06/86						10

Table 8. cont'd

	DATE	1E	2E	3E	1Y	2Y	ADULT
EM-090 Garcin Rocks	18/06/86	2	1				6
EM-140 Nest Islets	19/06/86						25
EM-160 Joyce Rocks	19/06/86						9
EM-190 Green Rock	19/06/86	1	3	1			21
EM-210 Bush Rock	19/06/86						1
EM-230 Swan Islands	19/06/86						4
EM-250 Slug Islet	19/06/86	1					5
EM-260 Rock Islet	19/06/86						2
EM-310 Howay Island	19/06/86						2
EM-320 "Island Bay" Gp.	19/06/86						2
EM-330 Kat Island	19/06/86	1	2				28
EM-340 Centre Islet	17/06/86						10
EM-350 Wanderer I.	19/06/86						35
EM-360 Sels Islet	19/06/86						40
EM-370 Park Island	17/06/86						27
EM-380 Koga Island	17/06/86						36
EM-430 Marco Rock	19/06/86	3	5				30
EM-450 Hoskins Its.	19/06/86						92
EM-470 Ramsay Island	20/06/86						1
EM-500 Hotspring I.	20/06/86	1					
EM-530 Murchison I.	20/06/86						10
EM-540 Agglomerate I.	20/06/86						6
EM-550 Kawas Islands	20/06/86						5
EM-560 Tar Islands	20/06/86						1
EM-620 Kul Rocks	20/06/86						1
EM-650 Lost Islands	20/06/86						6
EM-680 Kingsway Rock	20/06/86	3					72
EM-700 South Low I.	21/06/86						18
EM-710 Vertical Point	21/06/86						1
EM-730 Low Island	21/06/86		1				45
EM-740 Skedans Is.	21/06/86	1					78
EM-790 Cumshewa I.	21/06/86	1	1				62
SKIDEGATE INLET (K. Moore, M. Morris, D. Davies)							
SI-020 Gillat Island	22/06-01/07/86						11
SI-060 "Kwuna" Rocks	22/06-01/07/86						26
SI-070 "Alliford" Its.	22/06-01/07/86						54
SI-080 Bush Island	22/06-01/07/86						56
SI-090 Lillihorn I.	22/06-01/07/86						200
SI-100 Sandilands Rks.	22/06-01/07/86						20
SI-120 Maple Island	22/06-01/07/86						60
SI-210 Burnt Rocks	22/06-01/07/86						50
SI-230 Meyer Island	22/06-01/07/86						34
SI-270 Scalus Rock	22/06-01/07/86						8
SI-280 Sandstone Is.	22/06-01/07/86						200
MASSET INLET							
MI-010 Sloop Islet	24/06/86		1				7
MI-030 Dawson Islands	24/06/86	1	4				11
MI-040 "Kwaikans" Rks.	24/06/86						2

Table 8. cont'd

	DATE	1E	2E	3E	1Y	2Y	ADULT
MI-050 McCreight I.	25/06/86	1					52
MI-070 "Mutus" Rocks	25/06/86						3
MI-080 Learmonth I.	25/06/86						3
MI-090 Ross Islet	25/06/86						2
MI-100 Powell Island	25/06/86	1	1				4
MI-110 Cowley Islands	25/06/86		3				17
MI-120 Ohala Islets	25/06/86						2
MI-130 Steilta Islets	26/06/86		1				131
MI-140 Seegay Islets	26/06/86						2
MI-150 Modeets Is.	26/06/86						2
MI-160 Mamin Islets	26/06/86						1
MI-170 Harrison Is.	26/06/86						29
NORTH COAST GRAHAM ISLAND							
NG-030 "Cape Naden" Rks.	29/06/86	2	14				142
NG-040 "Klashwun" Rks.	29/06/86	1	3			1	33

TOTALS	1E	2E	3E	1Y	2Y	ADULT
WEST COAST GRAHAM ISLAND	1	7	0	3	3	442
WEST COAST MORESBY ISLAND	3	5	0	0	0	406
EAST COAST MORESBY ISLAND	14	13	1	0	0	901
SKIDEGATE INLET	0	0	0	0	0	719
MASSET INLET	3	10	0	0	0	268
NORTH COAST GRAHAM ISLAND	3	17	0	0	1	175
TOTAL QUEEN CHARLOTTE ISLANDS	24	52	1	3	4	2911

Table 9 presents the regional totals of adults observed around colonies in 1977 and 1986. For the reason given above, I have not attempted to interpret the differences.

Table 9. Numbers of Pigeon Guillemots at colonies in the Queen Charlotte Islands in 1977 and 1986.

	total birds 1977	1986
WEST COAST GRAHAM ISLAND	828	442(853)
WEST COAST MORESBY ISLAND	287	406(795)
EAST COAST MORESBY ISLAND	1499	901(2263)
SKIDEGATE INLET	1228	719
MASSET INLET	437	268
NORTH COAST GRAHAM ISLAND	77	175
TOTAL QUEEN CHARLOTTE ISLANDS	4356	2911(5073)

(): Numbers in parentheses include current totals from all colonies (data from Rodway et al in prep).
1977 data from BCNRS.

CONCLUSIONS

The nesting populations of Glaucous-winged Gulls and Black Oystercatchers were larger in 1986 than 1977. Contrarily, Pelagic Cormorant numbers were reduced and they were nesting at fewer colonies in 1986 than in 1977. Closer monitoring is warranted for this species, epecially at colonies around Moresby Island where recreational traffic is increasing, to determine if this is a long-term decline, and to assess possible causes. I was not able to interpret changes in the numbers of Pigeon Guillemots.

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